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# INFORMATION REPORT INFORMATION REPORT

## CENTRAL INTELLIGENCE AGENCY

This material contains information affecting the National Defense of the United States within the meaning of the Espionage Laws, Title 18, U.S.C. Secs. 793 and 794, the transmission or revelation of which in any manner to an unauthorized person is prohibited by law.

C-O-N-F-I-D-E-N-T-I-A-L

25X1

NOFORN

COUNTRY China

REPORT

SUBJECT Chinese Communist Commercial  
Advertising Material

DATE DISTR. 28 October 1958

25X1

NO. PAGES 1

25X1

REFERENCES

DATE OF  
INFO.

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DATE ACQ

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advertising materials sent by the China National Instruments  
Import Corporation

25X1

- a. Two catalogs of scientific apparatus, one illustrated and in English, the other in Chinese and English, giving prices in sterling pounds. For the most part the instruments offered appear to be elementary devices that might be used in early courses in science in grade or high schools.

25X1

- b. Five leaflets describing, in English, two types of hardness tester, a tensile testing machine designed according to USSR Type P-5, a universal testing machine, and a pendulum impact testing machine.

- c. Two photographs and a two-page typewritten description in English of Universal Epidiascope Model FT.

Attachments, unclassified when detached from this report

C-O-N-F-I-D-E-N-T-I-A-L

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(Note: Washington distribution indicated by "X"; Field distribution by "#".)

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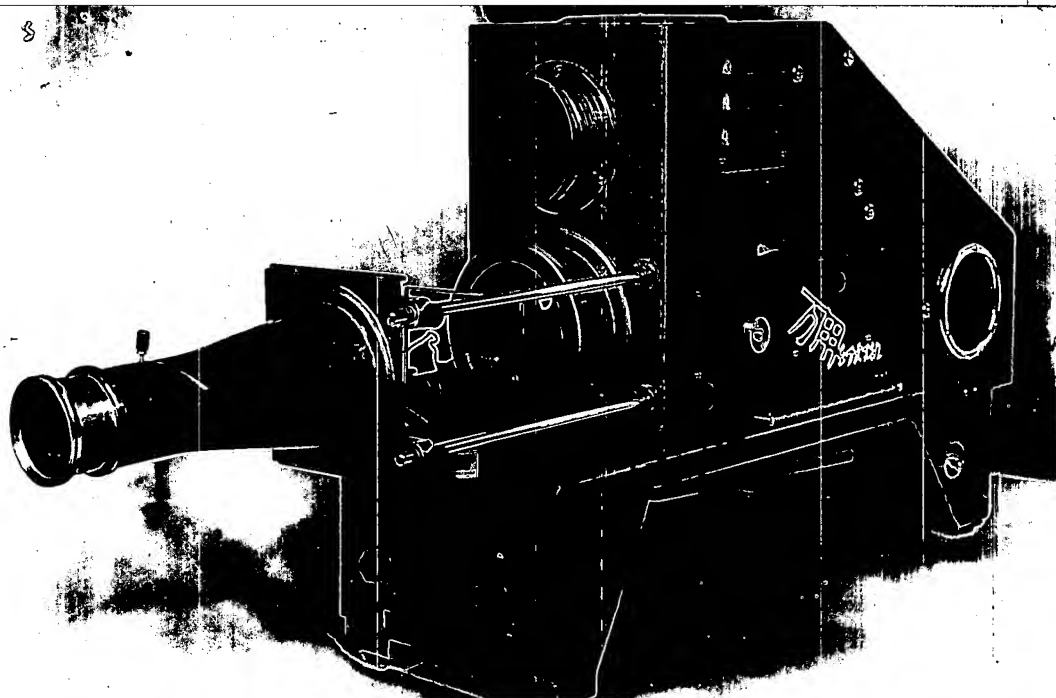
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**INFORMATION REPORT    INFORMATION REPORT**

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UNIVERSAL EPIDIASCOPE MODEL FT. PROJECTOR. ADVERTISEMENTS FROM CHINA

NATIONAL INSTRUMENTS IMPORT CORPORATION



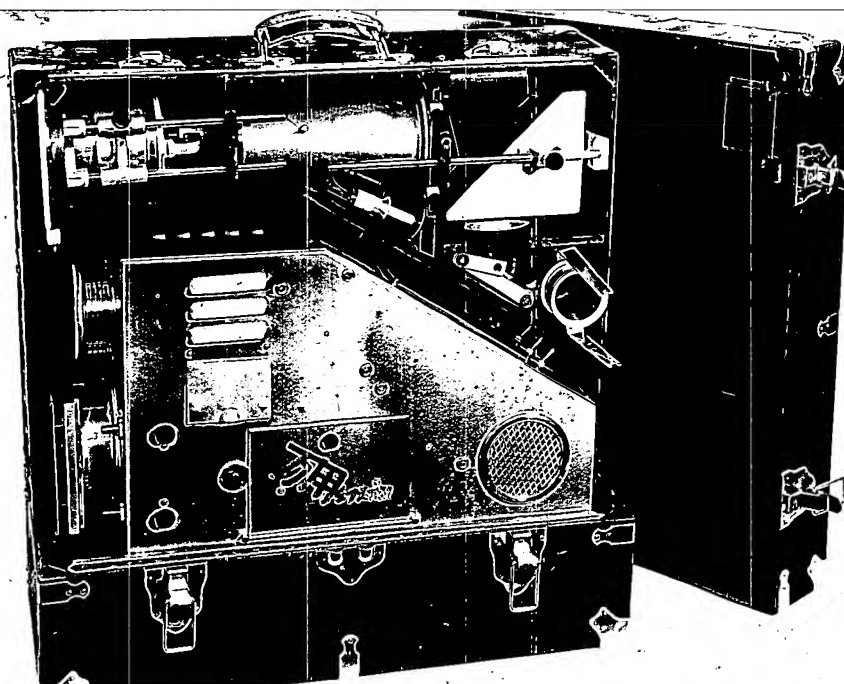
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CHINA

UNIVERSAL EPIDIASCOPE MODEL FT.-PROJECTOR. ADVERTISEMENTS FROM  
CHINA NATIONAL INSTRUMENTS IMPORT CORPORATION.



25X1

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Page - 2

**2. Plane Reflecting Projection:**

For projection of demonstrating experiments in physics and chemistry such as magnetic line of force, the movement of conductors in a magnetic field, the interference of waves on the surface of water, Brown's movement and vibrations of tuning fork, etc.

**3. Front Direct Projection:**

For observing such phenomena as capillary attraction, the dispersion of metals in electrolysis, the upward movement of hot air currents and the observation of the vaporization of ether, etc.

**4. Lantern Slides Projection:**

- (a) For lantern slides of 4" x 3 1/4"
- (b) " " " " 2" x 2"

**5. Micro-Projection:**

Projecting microscopic specimens within the maximum distance of 3 meters.

**6. Film Projection:**

- (a) Projecting 35mm roll film, single size.
- (b) " " " " double size.

**Main Accessories:**

1 piece	Episcope Objective, 80mm. diam.
3 pieces	Projection Objective, 52mm diam.
1 piece	Microscopic Objective
1 set	Plane Reflecting Projection Attachment
1 "	Lens Rack
1 "	Lens Barrel

**Size of Apparatus:** 27 x 27 x 12 ins.

**Net Weight:**

With wooden carrying case 30 kgs. approx.

### Universal Epidiascope Model FT

The Universal Epidiascope Model FT is an instrument of high educational value, widely adopted in primary as well as in higher and technical school instruction. By means of this instrument, all types of pictures, diagrams, books, printed matters, atlases, etc. may be projected. Microscopic specimens and slides which cannot be clearly observed by naked eye may also be projected and magnified so that they could be obviously seen by hundreds of spectators.

#### Special Features:

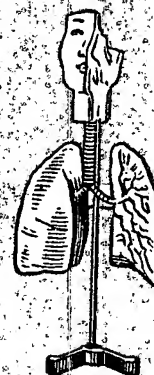
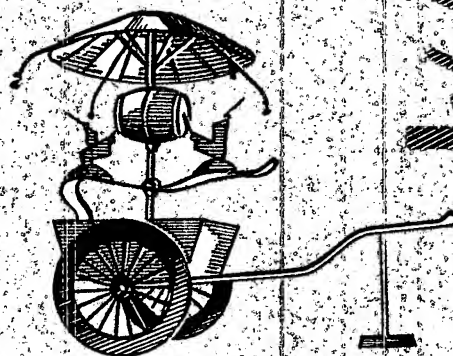
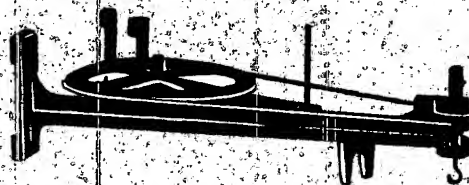
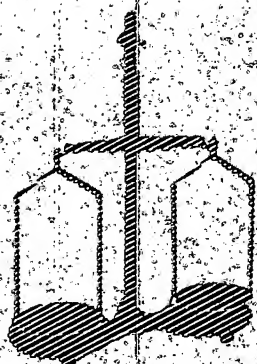
1. The Universal Epidiascope Model Ft is of higher efficiency than ordinary projection. For general direct projections, only a 500W lamp is necessary, yet fine details of little tiny objects can be clearly observed.
2. Carefully constructed throughout in every mechanical detail, this Epidiascope is made in an unusually attractive appearance. A cooling fan is equipped which may safeguard valuable books, pictures, etc. from being burnt. Owing to its high degree of heat dissipation, the lifetime of light bulb may also be greatly prolonged.
3. Serving the purpose of projecting images in lecture rooms or laboratories within the distance of 3 meters, this instrument saves the trouble of the staff to go to the very back of the room to effect projection. Nor need the students look to the back. Hence teaching efficiency is considerably increased.
4. The Plane Reflection attachment can project images of small objects so that details indiscernable by the naked eye may be observed. This is an advantage that provides invaluable assistance in quality inspections as well as in physical and chemical lectures.
5. The main body of the instrument may be freely adjusted forward or backward and a device is also provided for adjusting the episcopes stage to suit books or other projected specimens of different thickness.
6. For all demonstrating apparatus that do not give visions clear enough, this Universal Epidiascope may be adopted so as to obtain distance images through projection.

#### General Purposes:

##### 1. Opaque Light Projection:

For projecting postcards, atlases, books screws, watches, small animals, flowers, insects or sediments in liquid contained in glass beakers.

# 示教儀器 SCIENTIFIC APPARATUS



中國儀器進口公司

CHINA NATIONAL INSTRUMENTS IMPORT CORPORATION  
IMPORTERS & EXPORTERS

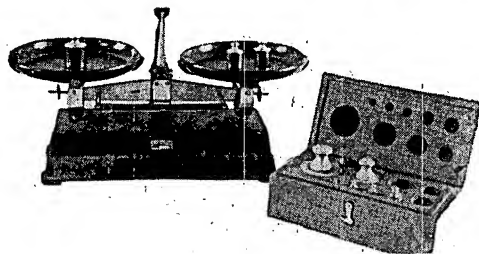
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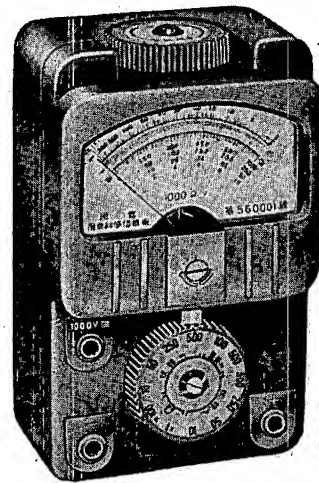
通用儀器 GENERAL APPARATUS



0002-2



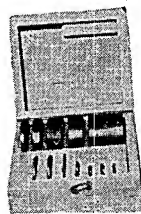
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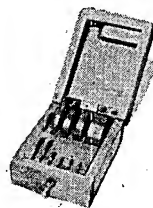
0008-3



0006-2



0004-2



0003-2



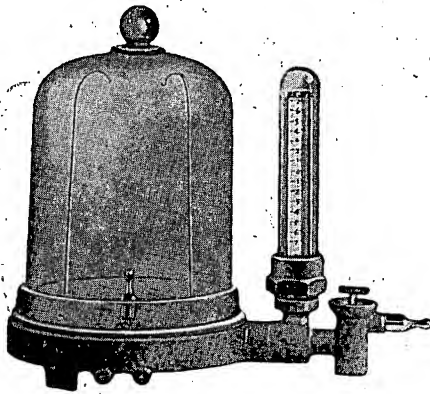
0005-2

- 0001-2 長方體組  
**Rectangular Cube Weights.** Made of iron, aluminium and zinc. Each kind 5 pieces.  
Volume  $5 \times 2 \times 1$  cm.
- 0002-2 受皿天平  
**Table Balance.** Capacity 2,000 grams, sensitivity 1 gm., with 1 set of weights in box.
- 0003-2 槽碼 1-200 克  
**Slotted Weights.** 1-200 gm. Containing one each of 200, 50, 20, 5, 1 gm. and two each of 100, 10, 2 gm. Total weight 500 gm. in wooden box.
- 0004-2 槽碼 1-500 克  
**Slotted Weights.** 1-500 gm. Containing one each of 500, 200, 50, 20, 5, 1 gm, 2 each of 100, 10, 2 gm. Total weight 1,000 gm. in wooden box.
- 0005-2 槽碼 20 克  
**Slotted Weights.** Cast iron, 32 mm. in diameter, 20 gm. each, 6 in a set.
- 0006-2 槽碼盤 20 克  
**Slotted Weight Disc.** Cast iron, 20 gm. each, 6 in a set.
- 0007-1 皮唧  
**Hand Bellow.** For air pumping use.
- 0008-3 萬用電表  
**Electric Measuring Instrument.** Field of Uses: DC 0.5-500 Milliampere, AC/DC 10-500: 1000; Volts. 1-1000; 100-100000 Ohms.

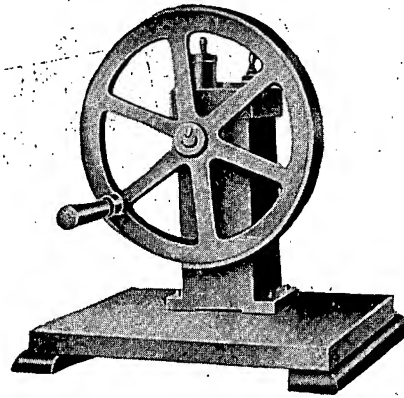
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通用儀器 GENERAL APPARATUS



0010-1



0009-1

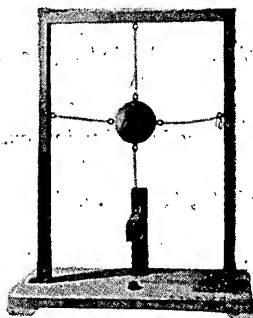
0009-1 手搖抽氣機

**Pump, Hand-driven.** May be used either for suction or for compression. Vacuum degree 0.3 cm. mercury column. Air compression up to 4 atmospheres.

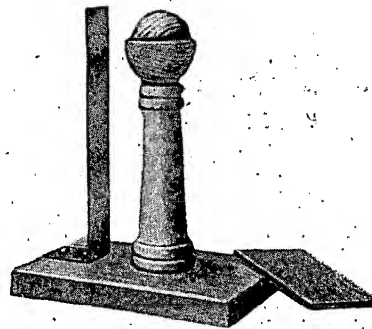
0010-1 帶壓力計抽氣盤

**Air pump Plate with Pressure Gauge.** Cast iron plate, 235 mm. in diameter. With mercury pressure gauge, it may be used in combination with a hand-driven pump and the instrument to be sucked (such as Madgeburg hemisphere, etc.) to show the vacuum degree. A bell jar is attached for the test of non-transmission of electric bell sound through vacuum.

力學 MECHANICS



0011-2



0012-2

0011-2 慣性球

**Inertia Ball.** A wooden ball hung in the centre of a wooden frame. The diameter of the ball is 100 mm.

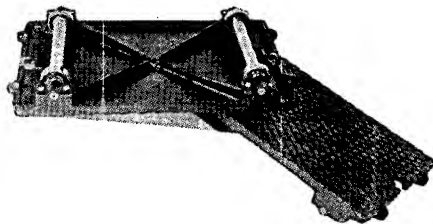
0012-2 慣性實驗器

**Inertia Apparatus.** A wooden ball support is fixed in the centre of a wooden base, and a steel spring fastened by the side. A wooden ball is attached, 25 mm. in diameter.

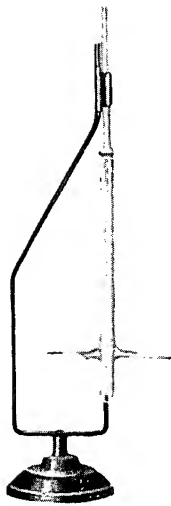
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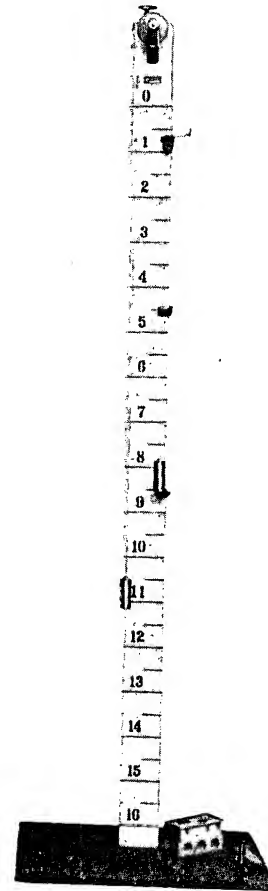
0014—2



0015—2



0016—1



0017—2

0013—2 牛頓第二定律實驗裝置

**Newton's Second Law Apparatus.** Falling stick type, illustrating the free movement of a falling body. An iron tripod and a 50 watts motor (tachometer attached), with a switch to control (6 volts supply) are fixed on a wooden base. A metal falling stick 100 cm. in length and 25.4 mm. in diameter is furnished.

0014—2 平 板 小 車

**Platform Carriages.** 2 cast iron platform carriages. 4 wheels with bearings. 345 mm. in length and 216 mm. in width.

0015—2 反 衝 水 力 機 模 型

**Model of Recoil Hydraulic Machine.** Made of glass. Mounted on an iron stand. Height 46 cm.

0016—1 牛 頓 管

**Newton Tube.** 120 cm. in length and 6 cm. in diameter. Containing piece of lead, cork and feather.

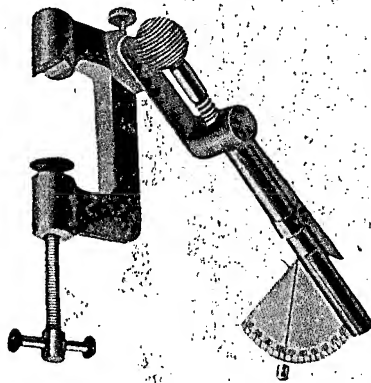
0017—2 簡 單 阿 特 武 德 機

**Simple Atwood's Machine.** A vertical wooden plate erected on a wooden base (186 cm. in height) with a pulley at the upper end and a graduated scale (at a division of 5 cm. each) reading downward from the top. On the base are 2 regulating level screws. Attached with a release clamp, a weight shaped clamp, a platform clamp, 2 heavy weights with 3 strings, 3 rectangular shaped weights -(2, 4, 6 gm.) and 7 round weights (2 at 2 gm., 4 at 1 gm. and 1 at 0.5 gm.)

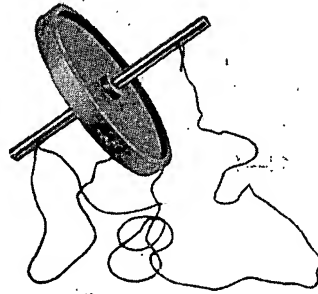
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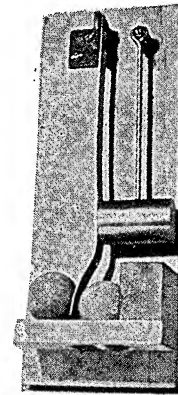
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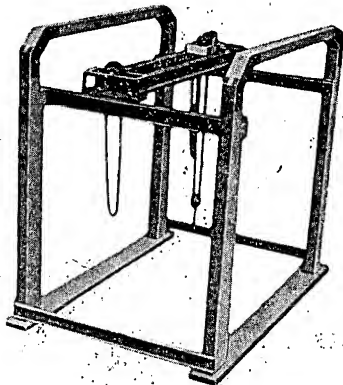
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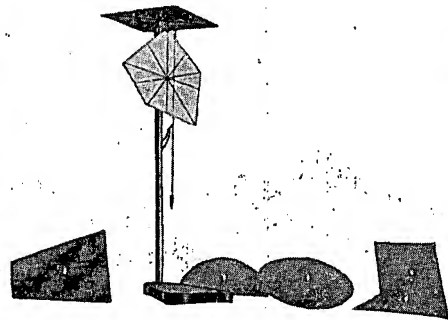
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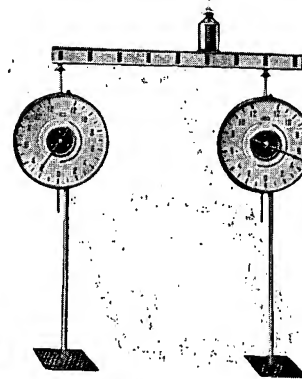
0019-2



0020-2



0023-2



0022-2

0018-2 演示拋物綫器

**Parabolic Projector.** A projecting tube with an angle-indicator attached, fixed on a table clamp, can be adjusted to any required angle. An iron ball (25 mm. in diameter) is furnished.

0019-2 平拋和自由落體等時實驗器

**Level Throw and Free Falling Body Isochronous Apparatus.** On the wooden board are a spring and a pendulum hammer, with two wooden balls (30 mm. in diameter).

0020-2 吊車模型

**Model of Hoist.** Parallel beam bridge type, consists of hoist, 2 sliding rails, a trolley and a differential pulley.

0021-2 麥克斯韋滾擺

**Maxwell's Revolving Pendulum.** Cast iron, diameter of the wheel 11 cm., length of the axis 14 cm.

0022-2 圓形測力計

**Dial Dynamometer.** Diameter of dials 22 cm. capacity 1,200 gm. sensitivity 100 gm. including 1 beam, 2 supporting pins, 2 stands, and 2 pulleys. It may be used for tests of carrying capacity of beam, compositions, and resolution of force, weight surveying, principle of parallelogram, conditions of lever equilibrium and Archimede's principle, etc.

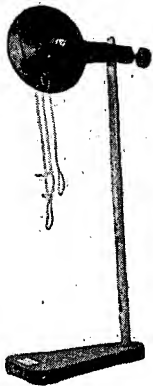
0023-2 重心板

**Center of Gravity Plates.** Consists of 7 metal plates of irregular shapes, with 1 iron stand and 1 plumb.

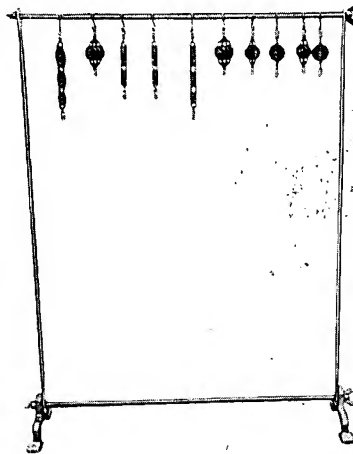
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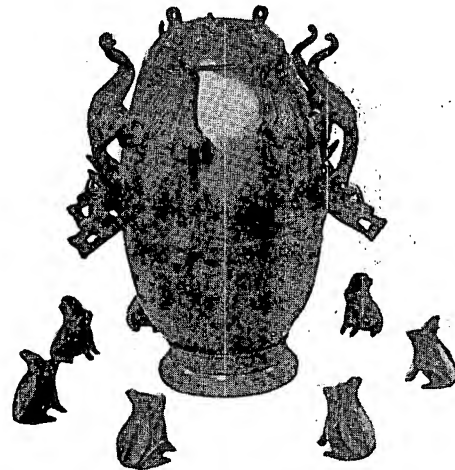
## 力 學 MECHANICS



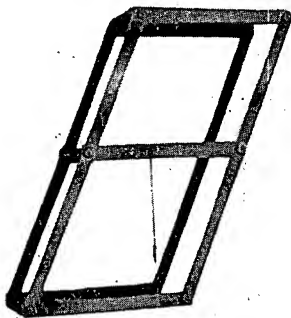
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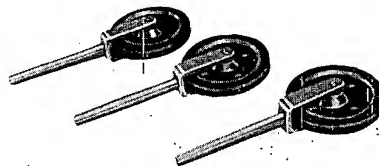
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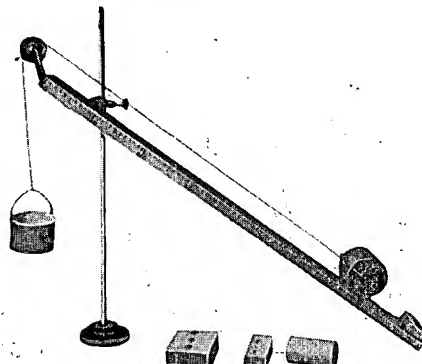
0025—2



0024—2



0026—2



0029—2

## 0024—2 物體穩度演示器

**Demonstration Apparatus for Centre of Gravity.** A movable riveted iron strip frame, 28 cm.  $\times$  19.5 cm.  $\times$  15cm., on the middle layer hung a plumb from its center.

## 0025—2 候風地動儀模型

**Model of "Hou Feng" Seismoscope.** A copy of the invention of the astronomer Chang Heng of Han dynasty. Around a metal barrel are evenly distributed eight dragons with their heads turning to eight different directions, while under them are placed eight open-mouthed toads, with their heads lifted up. Each dragon holds a bead in its mouth. In the middle of the barrel stands a stick of less gravitational stability. When a certain direction gets quaked, the stick falls on its opposite, and hits a spring on the dragon's head, and thus drives the bead out of the dragon's mouth to fall into the mouth of the toad underneath.

## 0026—2 滑 輪

**Pulleys.** Bakelite pulley mounted on a metal handle (60 mm. in length), 3 pieces a set.

## 0027—2 滑 輪 組

**Pulleys Set.** Consists of single pulley, parallel pulley, series pulley and combined pulley, 2 for each kind. Illustrating the difference of force-saving under different combinations, also for the tests of body lifting.

## 0028—2 輪 與 軸

**Wheel and Axle.** A metal axle mounted with three wheels of different grades, i.e. 30 mm., 60 mm., 90 mm., in diameter. Each wheel has a small hole for fastening strings and a movable catch, which can be taken off and put on another axle.

## 0029—2 斜 面 附 滑 輪

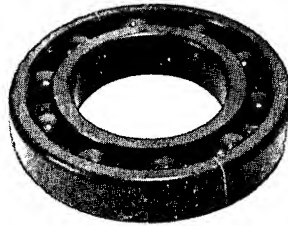
**Inclined Plane with Pulley.** Also called "Inclined Plane Apparatus". The inclined plane is a wooden board, measuring 70  $\times$  12 cm., including wooden blocks.

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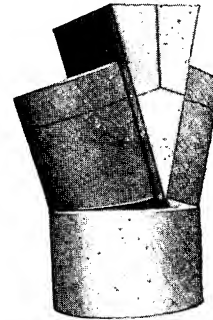
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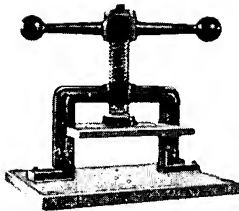
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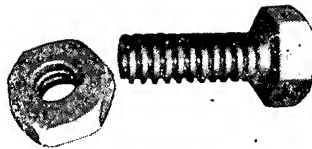
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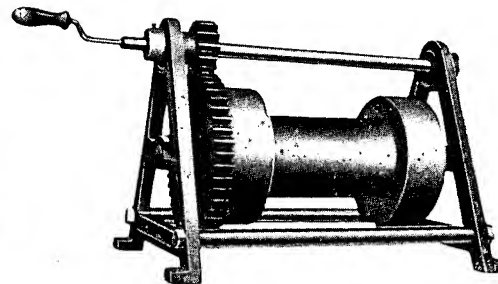
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0031—2



0030—2



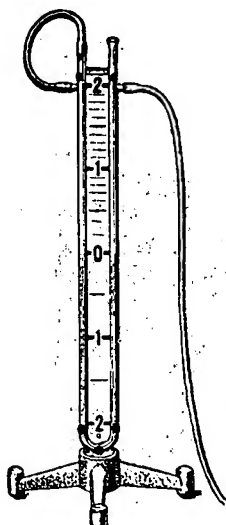
0033—2

- 0030—2 螺 旋 模 型  
**Model of Screw.** Bakelite convex top screw,  $30.5 \times 152.4$  mm. Nut in halves to show its structure.
- 0031—2 螺 旋 壓 榨 器  
**Screw Press.** Made of cast iron, effective press thickness 80 mm.
- 0032—2 螺 旋 舉 重 器  
**Jack-screw Model.** Made of cast iron, consists of a screw axis, 24.4 mm. in diameter, a base and winding stick. This is to be used in demonstration of the principle of screw lifting. Lifting capacity: 500 kgm.
- 0033—2 捲 揚 機 模 型  
**Winch Model.** Between two "A"-shaped, cast iron frames are mounted a drum (75 mm. in diameter and 35 mm., in length) and 2 bakelite gears (gear ratio 14 : 46). A crank is attached.
- 0034—2 雙 合 劈  
**Combined Wedge Split.** A round wooden split block (10 cm. in diameter and 15 cm. in height). Attached with a wedge  $30^\circ$  angle.
- 0035—2 球 軸 承 模 型  
**Ball Bearing Model.** Made of bakelite, 12 cm. in diameter, may be disassembled to see the internal structure.

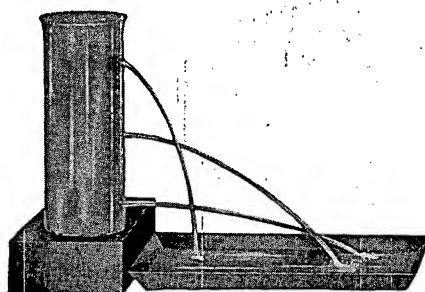
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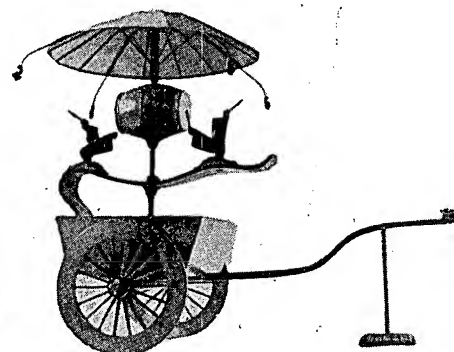
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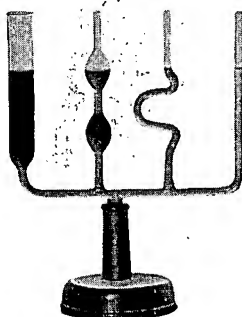
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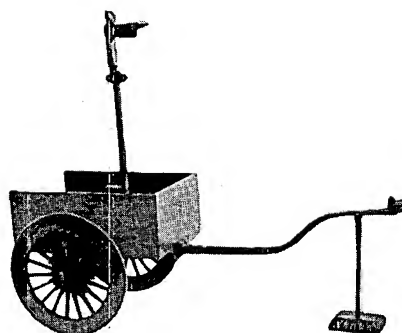
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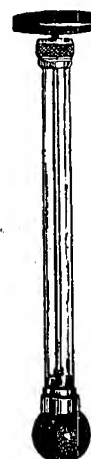
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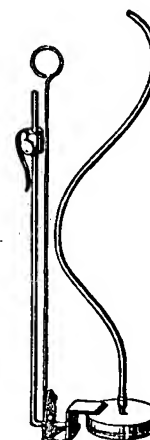
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0037-2



0038-1



0040-1

0036-2 記里鼓車模型

**Model of Drum-carriage for Mileage.** The carriage body is made of wood, gears bakelite.

0037-2 指南車模型

**Compass Carriage Model.** The carriage body is made of wood, gears bakelite.

0038-1 帕斯卡定律演示器

**Pascal's Law Apparatus.** A suction pump with a perforated metal globe attached at one end.

0039-1 側壓演示器

**Side Pressure Apparatus.** A glass cylinder, 35 cm. in height and 7 cm. in diameter, having 3 orifices on its side.

0040-1 液體內部壓強實驗器

**Liquid Pressure Apparatus.** A round metal box, covered with thin rubber film, can be turned to any direction at will with a hook. There is a hanger to hold the edge of a container and to adjust the depth. Used in connection with a fine manometer to measure the liquid pressure.

0041-1 微小壓強計

**Fine Manometer.** An open "U" tube is fixed on a graduated wooden board, including a 3-way glass tube, for measuring small pressure, e. g. demonstrating liquid pressure, heat radiation, heat dilatation of air and other tests.

0042-1 連通管

**Equilibrium Tubes.** 4 glass tubes of different shapes and sections are connected at the bottom by a level tube which is fixed on a wooden stand.

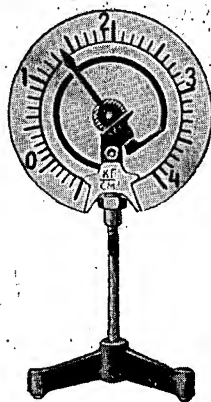
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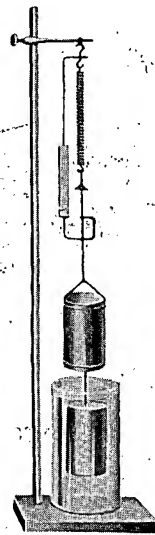
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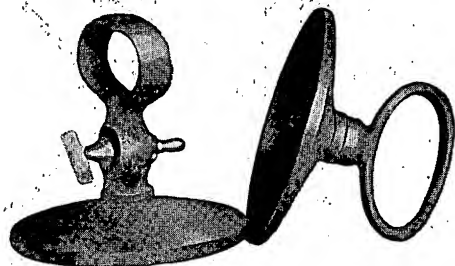
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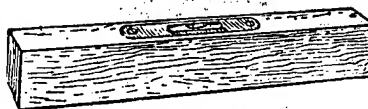
0050—1



0044—1



0047—1



0043—1



0049—1

0043—1 水 準 器

**Level.** A rectangular wooden block with an air bubble level set in the middle.

0044—1 阿 基 米 德 定 律 實 驗 器

**Archimede's Law Apparatus.** Consists of 1 little bucket and 1 cylindrical body of same volume and also a spring scale.

0045—1 液 體 比 重 計

**Hydrometer.** Made of glass, specific gravity greater than water.

0046—1 液 體 比 重 計

**Hydrometer.** Made of glass, specific gravity smaller than water.

0047—1 馬 德 堡 圓 盤

**Magdeburg Discs.** Also called "Magdeburg Hemispheres", cast iron, outside diameter 124 mm., inside diameter 95 mm., it takes 90 kgm. force to separate them.

0048—1 托 里 拆 利 管

**Torricelli Tube.** 3 glass tubes, one end sealed up, 98 mm. in length, inside diameter: 0.4, 0.5 and 0.7 mm., respectively including a mercury trough of cast iron.

0049—1 曲 管 氣 壓 計

**Barometer.** Simple type, a "U" shaped glass tube and a graduated scale fixed on a wooden board, Provided with 200 gm. mercury.

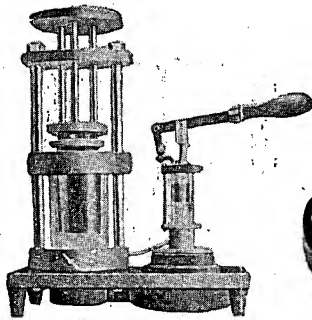
0050—1 金 屬 壓 強 計

**Metal Manometer.** A flat metal tube mounted on a stand, with a scaled disc and a pointer fixed thereon. Available to measure 0-4 atmospheres.

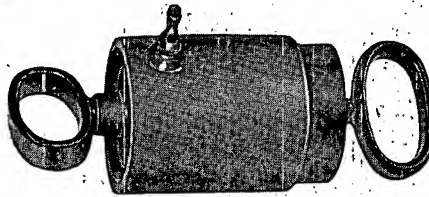
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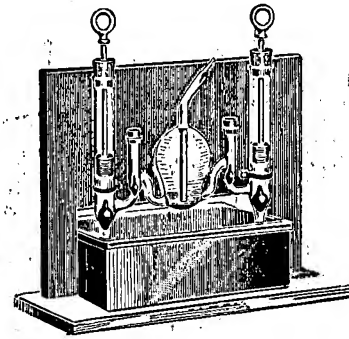
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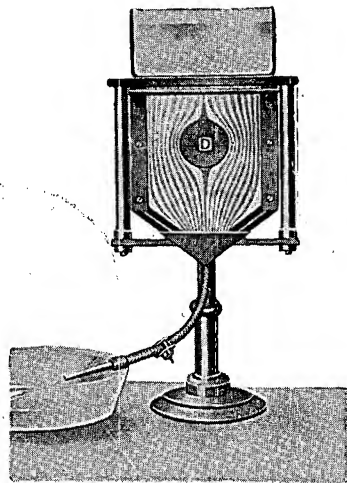
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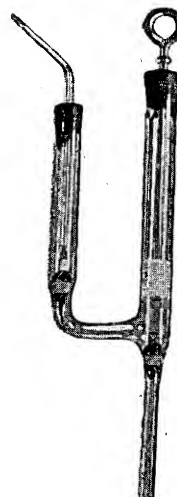
0052—1



0055—1



0057—1



0054—1



0053—1

0051—I 無液氣壓計  
**Aneroid Barometer.**

0052—I 氣體彈性實驗器

**Gas Tester.** Also called "Guericke's Can", a cast iron made piston and pump barrel. The cross sections of piston is 50 sq. cm. Used to demonstrate the effects of atmospheric pressure, also for the tests of gas compressibility, hydraulic press, and gas pressure transmission.

0053—I 空吸抽機

**Vacuum Pump.** Also called "Suction Pump", glass made. Valves made of colored glass, so that their action can be clearly seen.

0054—I 壓力抽機

**Force Pump.** Also called "Compression Pump", glass made. Valves made of colored glass, so that their action can be clearly seen.

0055—I 救火機模型

**Fire Extinguisher Model.** All made of glass, valves brown in colour, pump on both sides and air chamber in the middle.

0056—2 水壓機模型

**Hydraulic Press Model.** Pump and water tank made of glass. Can lift a weight of 80 kgm.

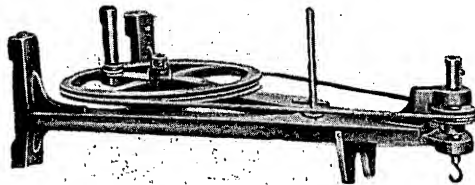
0057—I 流體流綫演示器

**Liquid Streamline Illustrator.** Two glass plates mounted on a metal frame with a space of 1 mm. between them, two perforated water troughs on the top, and provided with 6 wooden plates of different shapes, which may be placed between the glass plates. When pure water and colored water are filled into the troughs respectively they will illustrate the formation of stream-lines.

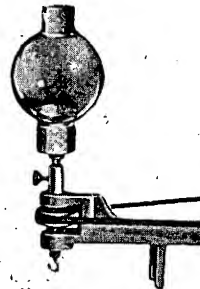
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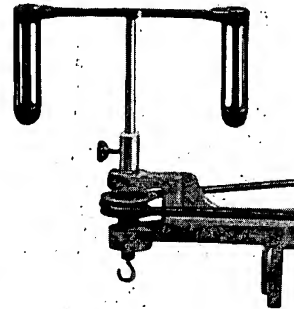
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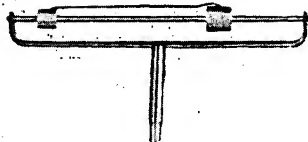
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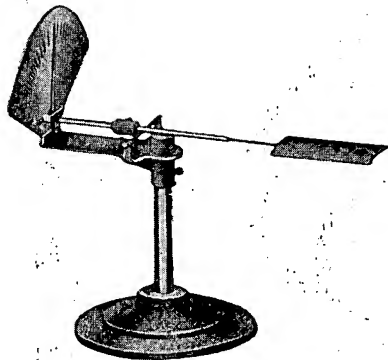
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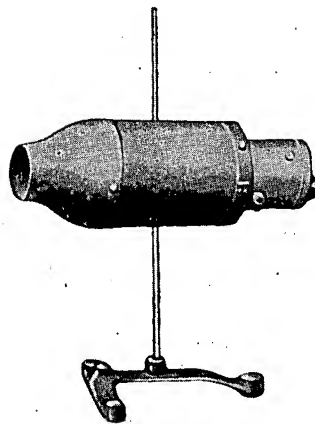
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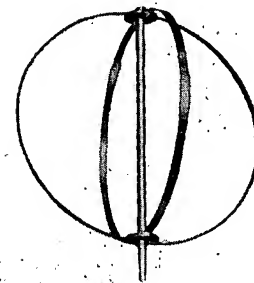
0060-1



0059-1



0058-1



0062-1

0058-1 噴霧器  
Atomizer.

0059-1 空氣動力秤  
Air Motion Scale. A dial plate and pointer are mounted on a stand, including a wind blower, 8 models of different shapes but of identical section, and 2 section models of airplane wings.

0060-1 向心力實驗器  
Centripetal Apparatus. On the upper horizontal rod are two cylindrical metal sliding weights, the large one 40 gm. and the small one 20 gm. To be used on a centrifuge.

0061-1 離心機  
Centrifugal Machine. Cast iron frame, may be used horizontally as well as vertically for rotating different kinds of centrifugal instruments, such as centripetal tester, elastic hoop, liquid separator, centrifugal separator, centrifugal governor etc. Also can be used to rotate color disc, Savart's toothed wheel siren disc etc.

0062-1 彈性圓環  
Elastic Hoop. Also called "Centrifugal hoop", 2 elastic metal rings mounted on a metal axle.

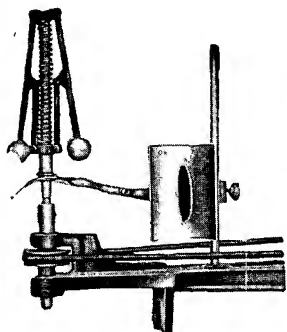
0063-1 離心分離器  
Centrifugal Separator. On both ends of a horizontal metal lever hung two slit cups, including glass tubes for sedimentation.

0064-1 離心分液器  
Centrifugal Liquid Separator. A globular glass container, with a mounting base and a shaft.

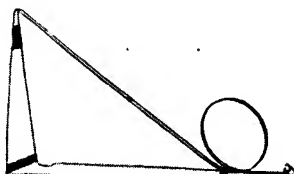
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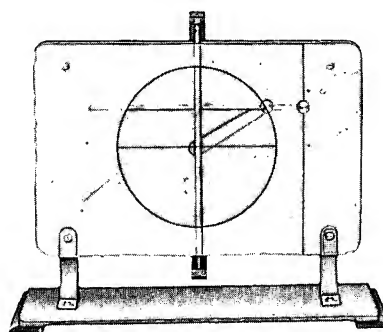
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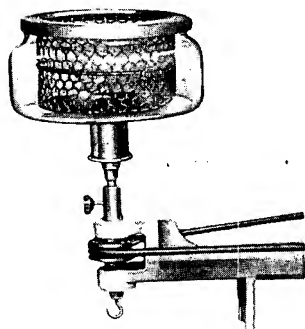
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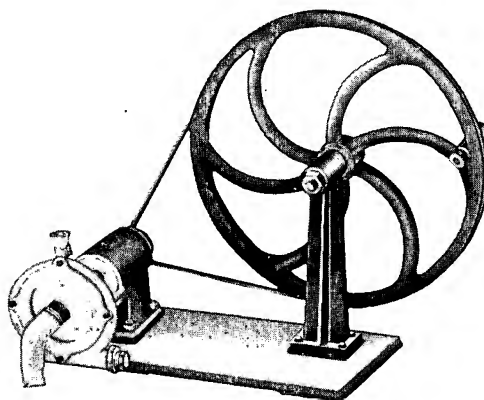
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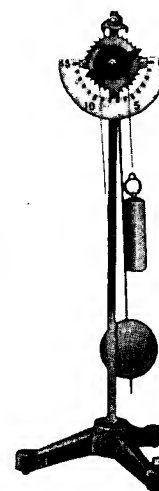
0070—1



0065—1



0069—1



0071—1

- 0065—1 離 心 乾 燥 器  
**Centrifugal Drying Machine.** Consists of a glass jar and a honey combed container.
- 0066—1 離 心 節 速 器  
**Centrifuge Governor.** Consists of two speed governing balls and the cut section of valve-regulatory apparatus, to be fixed on centrifuge.
- 0067—1 離 心 軌 道  
**Centrifugal Track.** Metal wire bent into a round track. A metal ball is furnished.
- 0068—1 轉 速 機 模 型  
**Model of Speed Counter.**
- 0069—1 離 心 抽 水 機 構 造 模 型  
**Model of Centrifugal Water Pump.** Transparent type. The metal wing wheel is mounted in a clear round metal casing, in the center of which is an inlet pipe, and on the side is an outlet, on the wing wheel axle is a belting wheel which can be connected with the hand wheel by leather belt. A water tank is attached.
- 0070—1 簡 諧 振 動 演 示 器  
**Simple Harmonic Oscillation Apparatus.** Consists of a vertical iron plate fixed with a crank shaft, which moves along a circumference, an up-and-down movable rod, and a line-designed glass plate.
- 0071—1 鐘 擺 模 型  
**Model of Pendulum.** Consists of a clock pendulum, a gear and an escapement, mounted on an iron tripod.

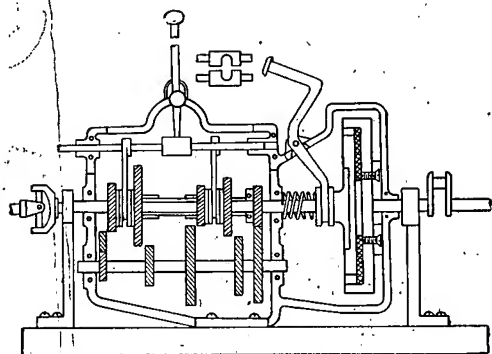
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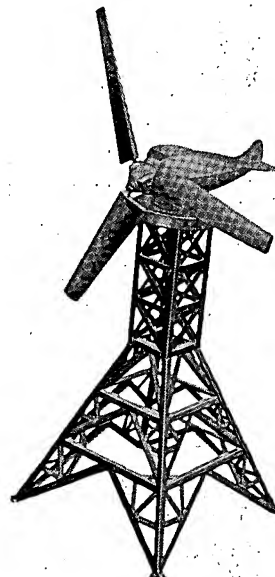
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0072—1



0074—2



0076—2

0072—1 縱波橫波說明器

**Vertical and Horizontal Waves Illustrator.** A wooden box with 19 vertical slits on the front and a horizontal slit on the back. In the box there are 2 rollers on which is a wave patterned cotton cloth strip and also two 40W lamp bulbs.

0073—2 力學共振演示器

**Mechanical Resonance Demonstrator.** A wooden frame (40 cm. in height, 30 cm. in width) with 4 wooden balls hung on it.

0074—2 齒輪調速器

**Gear Speed Regulator.** Made of metal. Section view of automobile speed transmission box, 25 cm. in length, 10 cm in width and 20 cm. in height.

0075—2 水輪機模型

**Water-Wheel Model.** Made of aluminum, wheel diameter 80 mm., thick 20 mm.. Attached with a water tank.

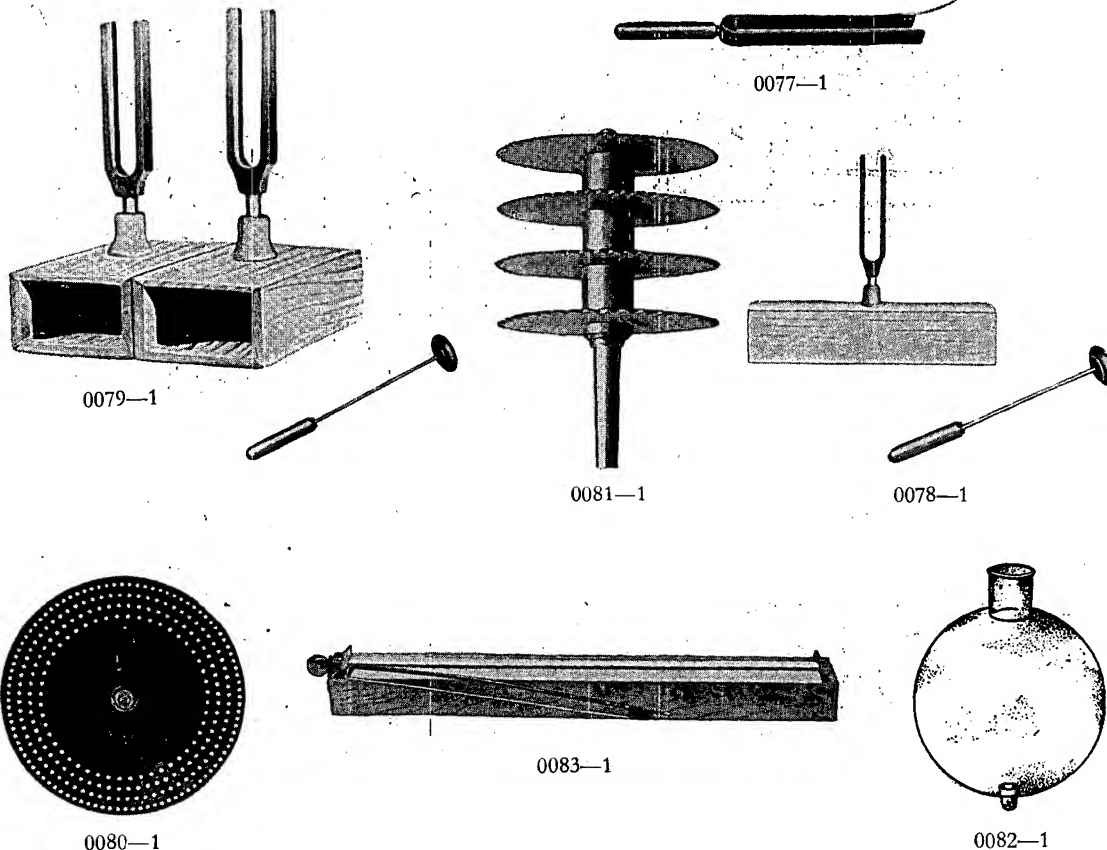
0076—2 風力發動機模型

**Model of Wind Mill.** Tower-like iron frame, with a wind wheel of 3 blades, diameter 50 cm.

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聲 學 SOUND

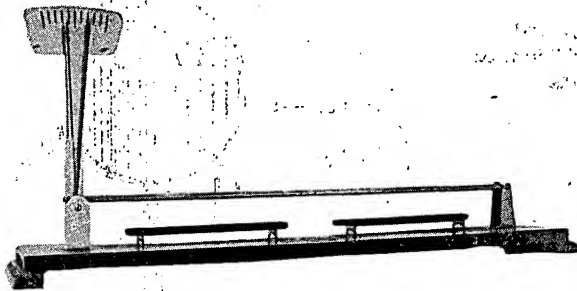


- 0077-1 示 振 音 叉  
**Tuning Fork, Vibrograph.** Made of iron plate, with stylus, frequencies 60-120 Hertz. For indication of the simple harmonic vibration (sine wave).
- 0078-1 音 叉  $F=256$   
**Tuning Fork.** Made of steel, frequencies 256 Hertz. with box and rubber hammer.
- 0079-1 音 叉  $F=440$   
**Tuning Fork.** Made of steel, frequencies 440 Hertz. Including a pair of tuning forks, two boxes and two rubber hammers.
- 0080-1 驗 音 盤  
**Siren Disc.** Made of iron plate, with four rows of holes. Frequencies 48, 60, 72, 96 Hertz. 1 mouth-piece is attached. To be fixed on centrifuge.
- 0081-1 發 音 齒 輪  
**Articulation Toothed Wheel.** Made of metal. Four toothed wheels mounted on one axle. Each bearing 40, 50, 60, 80 teeth respectively. To be fixed for use on a centrifuge.
- 0082-1 共 鳴 器  
**Acoustical Resonator.** Also called "Helmholtz Spherical Resonator", made of glass, frequencies 440 Hertz.
- 0083-1 絃 音 計  
**Sonometer.** Resonance box 85 cm. in length, one end fixed with pulley, 3 metal chords of different diameters and one bow attached.

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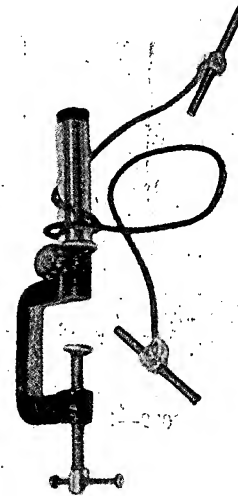
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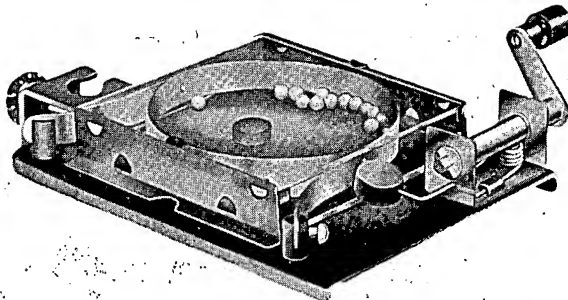
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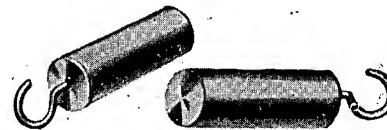
0084—1



0087—2



0085—1



0086—1

0084—1 擴散實驗器

**Diffusion Tester.** Porous unglazed container with bakelite spout.

0085—1 布朗運動說明器

**Brownian Movement Model.** Iron frame (150×120 mm.) on which a spring steel ring (diameter 70 mm.) is mounted. Two square glass plates are fixed on both sides. Several tens of steel balls and a piece of rubber in the midst. Can be shown on the screen with a projector. Effect is remarkable.

0086—1 內聚力實驗器

**Cohesive Force Apparatus.** Provided with two hooked cylindrical bodies of lead.

0087—2 機械能變熱能演示器

**Apparatus Showing Transmission of Mechanical Energy into Thermal Energy.** Also called "Work and Heat Mutual Transmission Apparatus". A brass tube fixed on a table clamp. A piece of silk cord is attached.

0088—2 熱功當量實驗裝置

**Testing Apparatus for Mechanical Equivalent of Heat.** Joule type, with wooden frame, metal cylinder frame axle and friction lessening wheel. Inside is a rotary vertical axle with blades. On the internal wall are fixed blades. Two rulers and 2 heavy hammers attached.

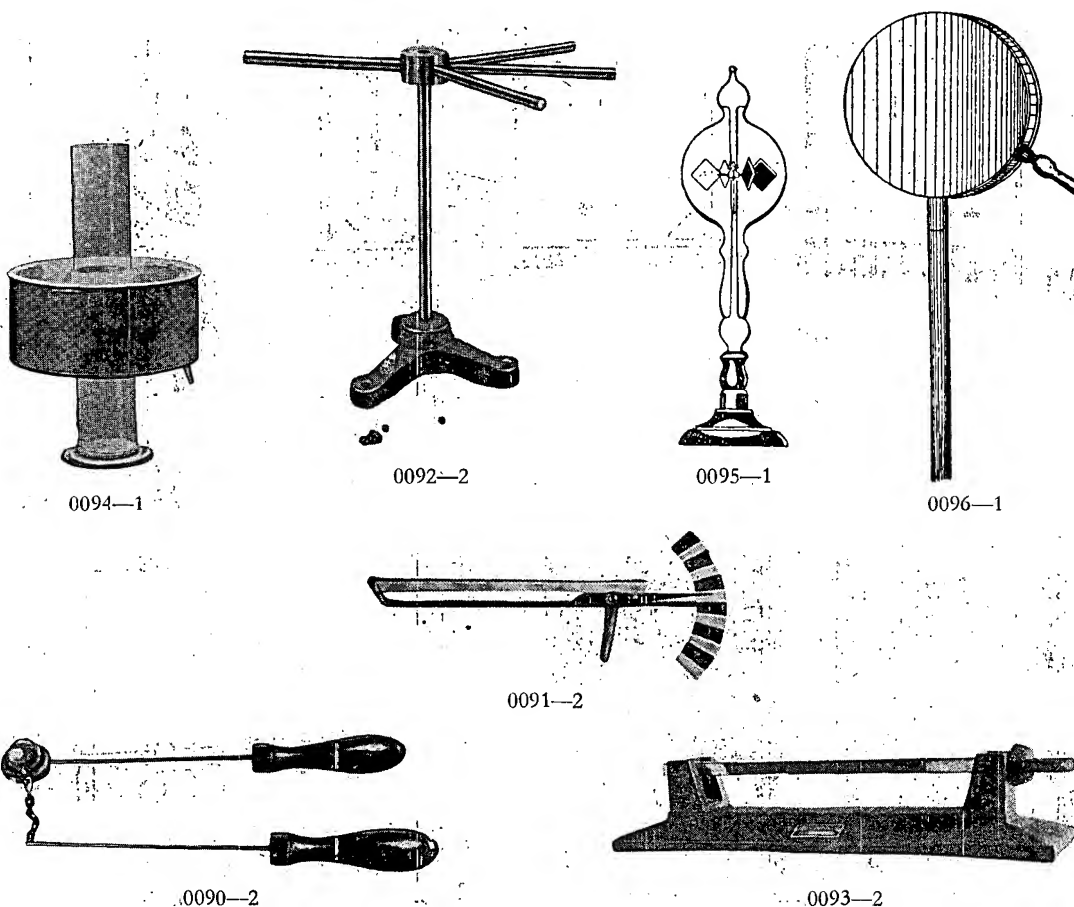
0089—2 線膨脹演示器

**Linear Expansion Indicator.** Copper and iron rods each one piece, 60 cm., in length, with fixed supports at both ends. One end of the support has a scale board and two pointers, and two alcohol troughs are placed in the middle.

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## 0090-2 體膨脹演示器

**Cubical Expansion Indicator.** Handle type, copper ball (25 mm. in diameter) and copper ring each one piece. Both are mounted on metal handles. Length of handle 193 mm.

## 0091-2 雙層金屬片

**Double Metal Plates.** Also called "Copper and Iron Riveted Plate". By riveting copper and iron plates together. With scale board and pointer mounted at one end.

## 0092-2 熱傳導比較器

**Heat Conduction Comparator.** 1 heating rod and 3 testing rods made of copper, iron and zinc respectively. Mounted on top of a metal tripod. With nine steel balls.

## 0093-2 固體縮力演示器

**Solid Contraction Indicator.** Made of iron. Effective pulling distance 295 mm.

## 0094-1 水的最大比重演示器

**Indicator for the Maximum Specific Gravity of Water.** Also called "Indicator for Maximum Density of Water" or "Hydraulic Abnormality Tester". At the middle part of the glass cylinder is surrounded with a metal cooling reservoir.

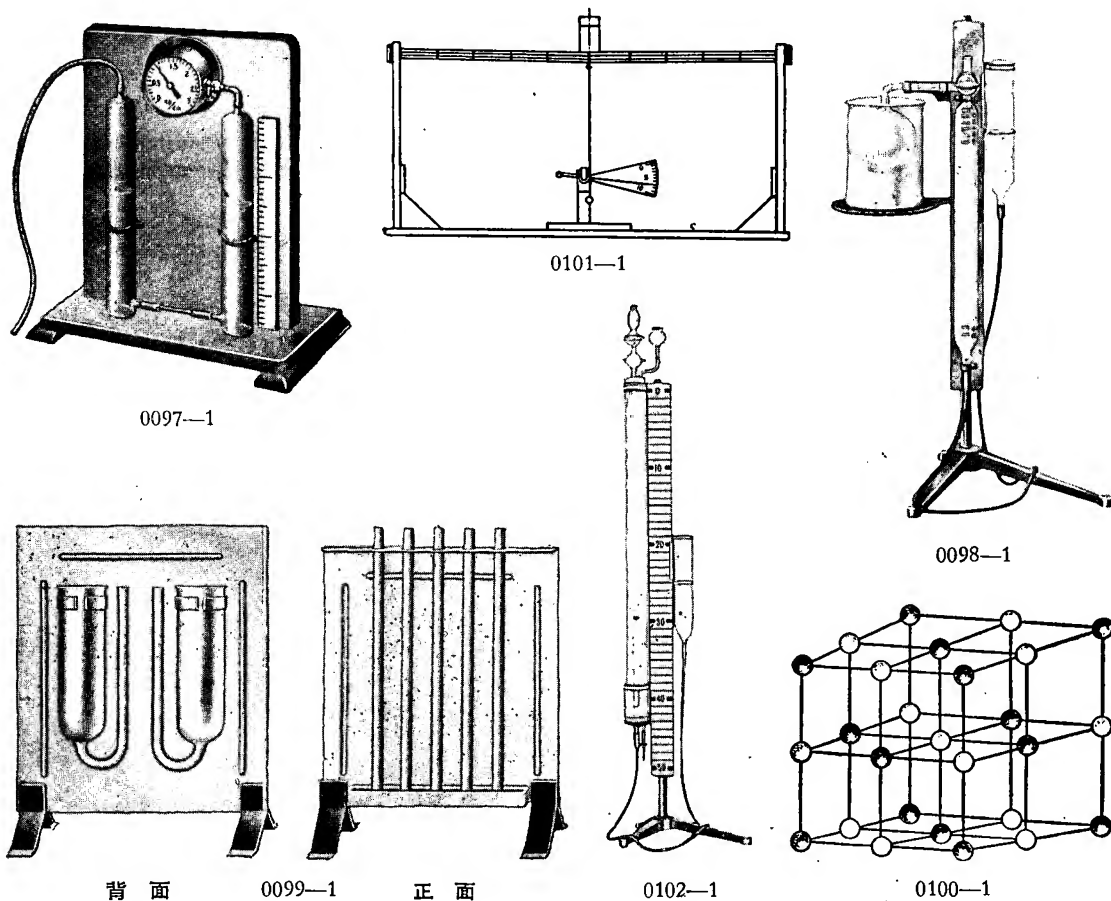
## 0095-1 輻射計

**Radiometer.** Vacuum glass bulb (8 cm. in diameter). Consists of a revolvable axle with four prismatic wings of white colour on one side and black on the other.

## 0096-1 熱輻射演示器

**Indicator for Heat Radiation.** A round empty brass box; one side of which is painted black and the other side is brilliantly plated, having a handle and an air outlet which can be connected with the rubber tube of a small pressure gauge.

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## 0097—1 玻意耳—馬略特定律演示器

**Boyle Mariotte's Law Apparatus.** Two vertically parallel interlinking glass tubes (diameter 6 cm. height 35 cm.) mounted on a wooden frame. With a metal pressure gauge (0-3 atmospheres). Pressure can be increased to 3 atmospheres or decreased to 0.5 atmosphere.

## 0098—1 膨脹計

**Expansion Apparatus.** Air thermometer type, provided with a 3-way stopcock on top of a graduated tube and of a glass globe of definite capacity, connected with rubber tube and a funnel and mounted on a tripod. Supporting pan for warm basin attached.

## 0099—1 毛細現象演示器

**Illustrator of Capillarity.** A white screen support, with 5 capillary tubes of different calibres mounted on one side and two "U" tubes on the other.

## 0100—1 晶體空間點陣模型

**Crystal Space Lattice Model.** 27 bakelite balls, of which 14 balls in yellow colour representing sodium ion and 13 in green colour representing chloride ion, all of them being connected in series by iron rod to form the space lattice of sodium chloride.

## 0101—1 梁的彎曲實驗器

**Beam Bending Tester.** Made of wood. With pointer and graduated scale, including 6 cast iron blocks (two pieces at 1 kg. each, two pieces at 500 gm. each, two pieces at 200 gm. each). Used for indicating the deflection of beam at the time of changing material and shape (length, width and thickness) of the beam. Also for testing the deflection of double T and angle iron beams and arm bridge.

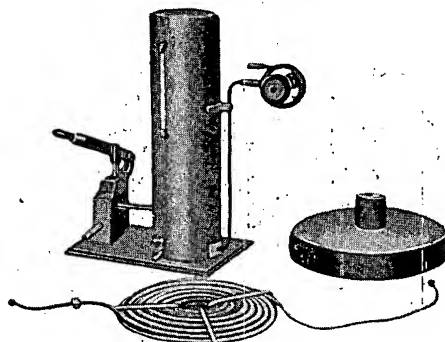
## 0102—1 飽和氣壓與溫度的關係實驗裝置

**Testing Apparatus of the Relation Between Temperature and Saturated Atmosphere.** A glass tube, fitted with 2 stopcocks and a funnel, connected to another funnel by a rubber tube to form a communicating vessel. A warming jacket tube and thermometer attached.

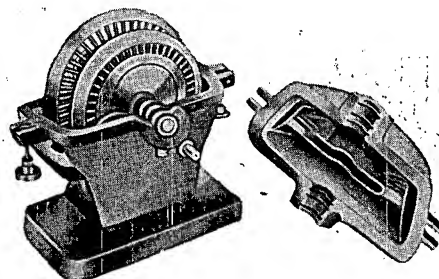
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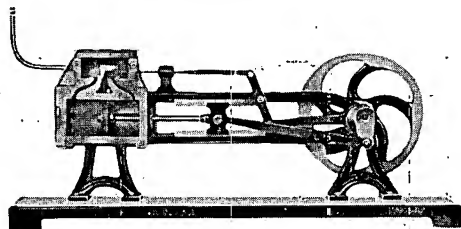
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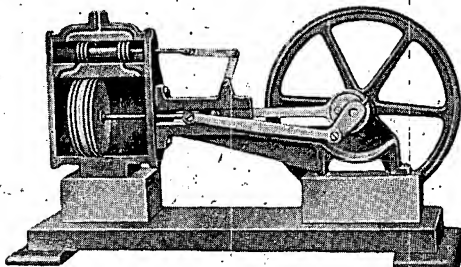
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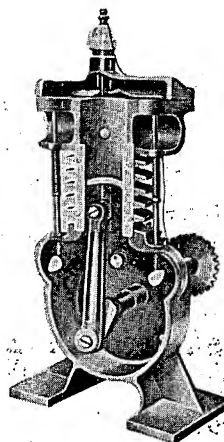
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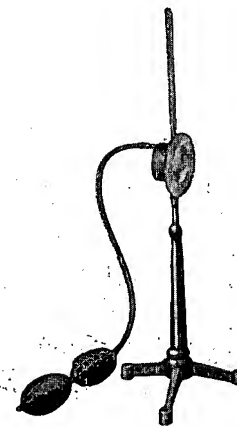
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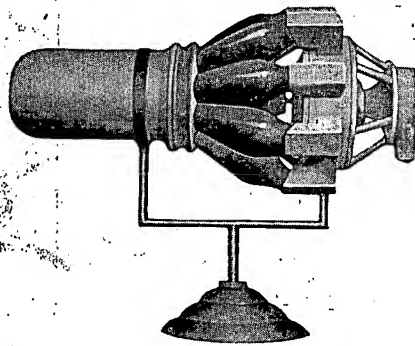
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- 0103-1 藍布列希德濕度計  
**Lambrecht's Hygrometer.** Round case type with nickel plated surface. Fitted with a socket for thermometer. Pumping bulb and thermometer attached.
- 0104-1 乾濕球濕度計  
**Dry and Wet Bulb Hygrometer.**
- 0105-1 毛髮濕度計  
**Hair Hygrometer.**
- 0106-1 蒸汽機模型  
**Model of Steam Engine.** Cross Section Model. Body of Engine made of cast iron. Mounted on wooden base.
- 0107-1 吹動式蒸汽機模型  
**Model of Steam Engine, Pumping Type.** Reciprocal movement of piston in cylinder made possible by pumping with rubber bulb. The movement of piston and sliding valve can be seen through the glass plate.
- 0108-1 蒸汽輪機模型  
**Model of Steam Turbine.** Made of cast iron; 2 stage type. Simple water pipe boiler and its accessories (including feed-pump and bucket) attached.
- 0109-1 內燃機模型  
**Model, Internal Combustion Engine.** Made of cast iron, 4 strokes single cylinder. The upper part is explosion chamber, the lower part cylinder. Piston with connecting rod and crank shaft can move up and down. With gas inlet valve on top of the left side and gas exhaust valve on top of the right side. Small bulb represents spark plug on the top. When the engine is connected with a battery, the bulb will be lighted at the 3rd stroke, thus indicating explosion.

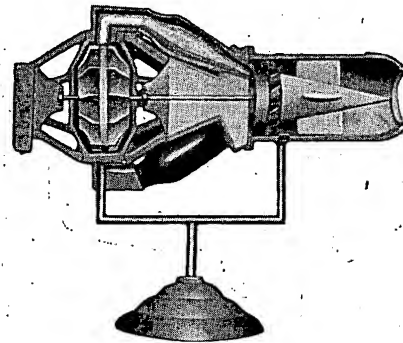
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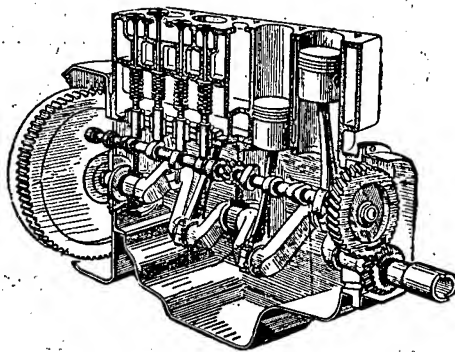
分子物理學和熱學 MOLECULAR PHYSICS AND HEAT



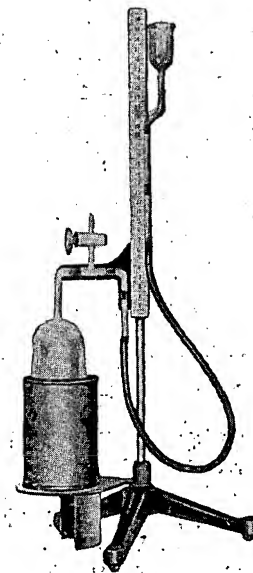
0111-1



0111-1 的剖面



0110-1



0112-1

0110-1 四汽缸內燃機模型

**Model of Four Cylinder Internal Combustion Engine.** Longitudinal cross section model, with electrical charge device.

0111-1 噴氣發動機模型

**Model of Jet Engine.** Turbine type, equipped with a centrifugal compressometer. From the cross section of the above are shown the structure of air inlet, combustion chamber of compression device (bladed wheel), turbine and jet devices (blast pipe), etc.

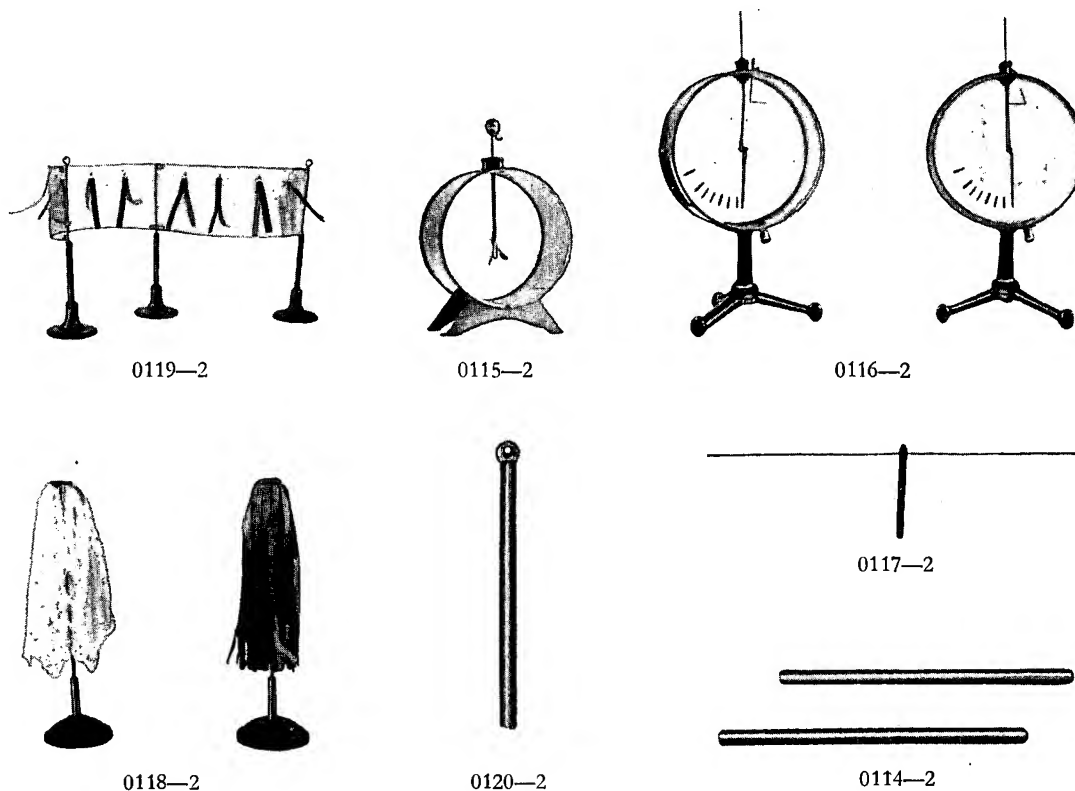
0112-1 氣體熱壓強係數測定裝置

**Air Heat Pressure Coefficient Determination Apparatus.** Including  $\Pi$ -shaped tube with piston and a tripod with graduated scale and movable funnel.

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# 電 學 ELECTRICITY

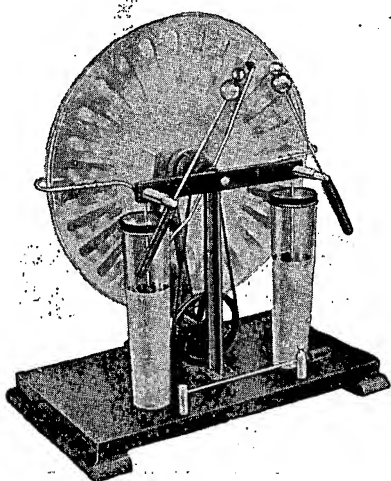


- 0113—2 玻 璃 棒**  
**Glass Rod.** 250 mm. in length, provided with 2 pieces of silk.
- 0114—2 膠 木 棒**  
**Bakelite Rod.** 250 mm. in length, provided with 2 pieces of fur.
- 0115—2 箔 片 驗 電 器**  
**Foil Electrostatic Detector.** Drum-shaped, covered with glass both sides, 123 mm. in diameter and 82 mm. thick, paper substituted for foil, and the effect is good.
- 0116—2 指 針 驗 電 器**  
**Needle Electrostatic Detector.** Drum-shaped, iron casing 198 mm. in diameter and 60 mm. thick, both sides covered with glass, one of which with a graduated scale. Aluminium pointer.
- 0117—2 驗 電 器 連 接 桿**  
**Electrostatic Detector Connecting Rod.** An insulated bakelite handle one end of which is equipped with a piece of No. 14 steel wire (45 cm. long).
- 0118—2 驗 電 羽**  
**Electric Plume.** On top of a metal stand are fixed 60 strips of coloured paper plumes (20 cm. long) full height 31 cm.
- 0119—2 驗 電 幡**  
**Electric Streamer.** A fine copper gauze 35×10 cm., supported by 3 rods. On both sides of the gauze are attached 16 strips of paper foil.
- 0120—2 驗 電 球**  
**Electric Ball.** A copper ball, 15 mm. in diameter mounted at one end of an insulated bakelite handle, 150 mm. in length.

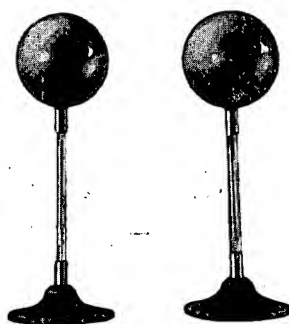
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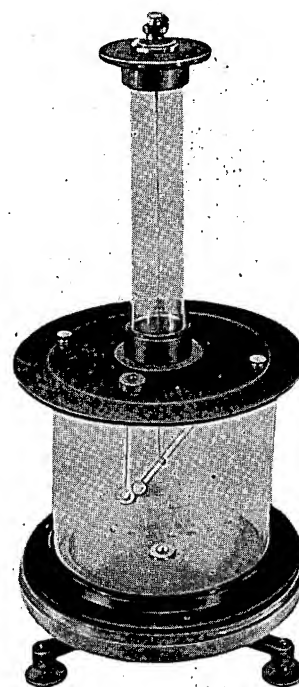
## 電 學 ELECTRICITY



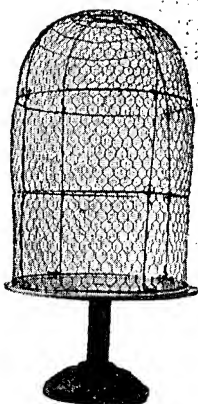
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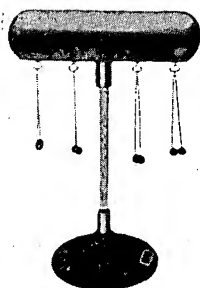
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0121-2



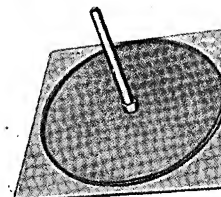
0125-2



0123-2



0124-2



0126-2

## 0121-2 庫倫扭秤

**Coulombmeter.** A graduated glass cylinder with one glass rod suspended in the centre and another fixed to the cover near the inner wall. Full height of the instrument 49 cm.

## 0122-2 球形導體

**Spherical Electric Conductor.** A copper hollow globe 15 cm. in diameter fixed on an insulated stand.

## 0123-2 枕形導體

**Pillow Shaped Electric Conductor.** A cylindrical body, semi-spherical on both ends, 50 mm. in diameter and 175 mm. in length, fixed on top of an insulated stand. Attached with 4 pairs of pith balls.

## 0124-2 尖形導體

**Cone-shaped Electric Conductor.** A conical cylinder, protruding out at one end and concave in the conic cylinder at another. It is 80 mm. in diameter and 200 mm. in length fixed on top of an insulated stand.

## 0125-2 金屬網罩

**Metallic Wire Netting Cover.** A wire netting hood with round top, 30 cm. high and 19 cm. in diameter. Provided with an insulated metal support, 22 cm. in diameter.

## 0126-2 起電盤

**Electrophorus.** A galvanised iron sheet disc (23 cm. in diameter) with one bakelite handle in the centre. Provided with one piece of square glass plate.

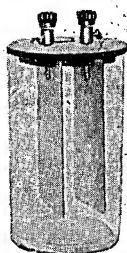
## 0127-2 感應起電機

**Influence Machine.** This machine has a spark range of 80-120 mm. for use in static electricity experiment. The glass disc 40 cm. in diameter.

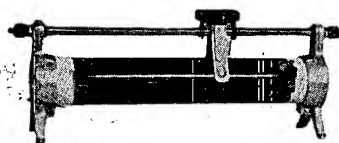
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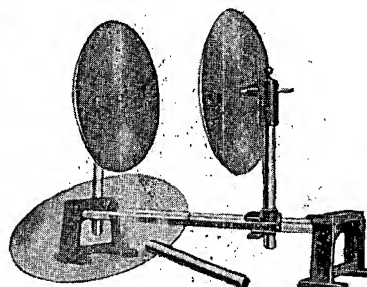
電 學 ELECTRICITY



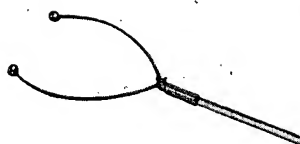
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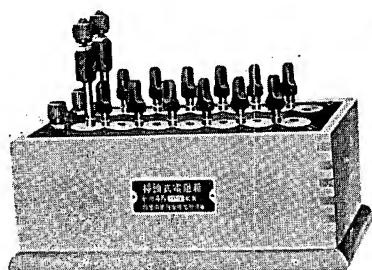
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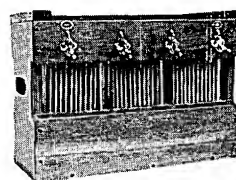
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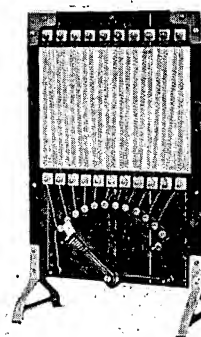
0128-2



0134-3



0133-2



0136-3

0128-2 放 電 叉

**Discharge Tongs.** Single bakelite handle. Ball 15 mm. in diameter, Tongs 24 mm. in length.

0129-2 可 變 平 行 板 電 容 器

**Variable Parallel Plate Condenser.** Metal discs (20 cm. in diameter) fixed on two parallel sliding rods. Maximum sliding distance is 22 cm. One of the sliding rods has a graduated scale with a minimum graduation of 1 mm.

0130-2 可 變 電 容 器

**Variable Condenser.** Made of 2 sets of metal sheets, 11 in all, each is of about 42.6 sq. cm.

0131-2 萊 頓 瓶

**Leyden Jar.** Upper mouth of jar 113.5 mm. and bottom 104.5 mm. in diameter, Height 250 mm.

0132-2 伏 打 電 池

**Volta Cell.** A glass jar with one copper plate and three zinc plates, 50 x 40 mm.

0133-2 鉛 蓄 電 池

**Lead Storage Battery.** 3 cells in all, each contains 9 plates, connected in series, the total voltage is 6 volts, and the capacity 30 ampere hour.

0134-3 電 阻 箱

**Resistance Box.** With a resistance value of 1 ohm in minimum and 1110 ohms in maximum.

0135-3 滑 動 變 阻 器

**Sliding Rheostat.** With a maximum resistance value of 1750 ohms and a current of 0.45 ampere and an error of  $\pm 5\%$ .

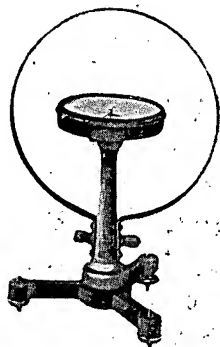
0136-3 轉 柄 電 阻 器

**Resistor, Arm Revolving.** 20 pcs. of resistance wires, 0.5 ohm each, fixed on a wooden board. The movable arm can be revolved to any contact points, the full resistance is 10 ohms.

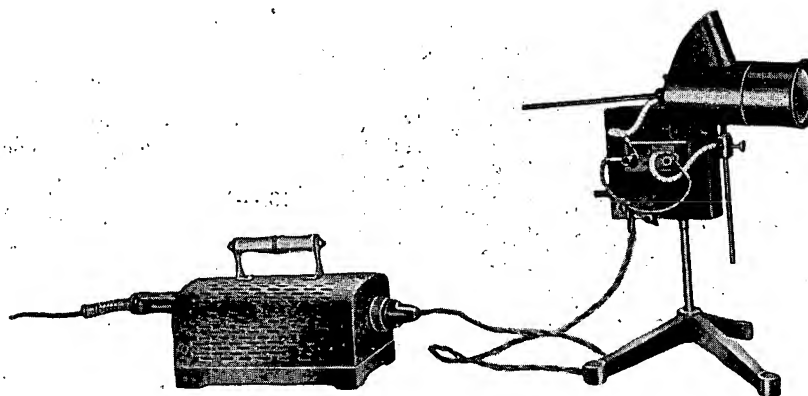
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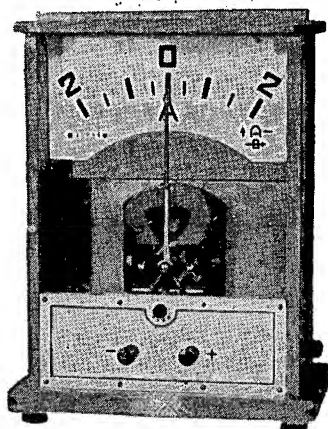
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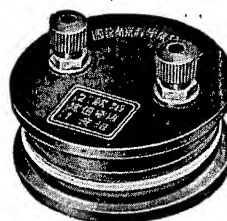
0141—3



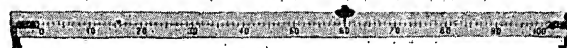
0142—3



0139—3



0137—3



0138—3

0137—3 定 值 電 阻

**Constant Value Resistance.** A round bakelite box, top side fitted with two binding posts. Provided with 5 resistors, 1 ohm, 2 ohms, 3 ohms, 4 ohms and 5 ohms respectively, wound with constantan copper wire.

0138—3 直 綫 電 橋

**Straight Wire Bridge.** A graduated wooden ruler at 1 meter long, fitted with a resistance wire at about 1 ohm and with an error of  $\pm 10\%$ .

0139—3 演 示 用 電 流 計

**Galvanometer for Illustration.** Sensitivity to 2 milliamperes. Voltage drop at the meter terminal is 50 millivolts with an error of  $\pm 5\%$ . Fields of survey: D. C. 0-1.5-5 ampere, Direct E. M. F. 0-5-15 volts, A. C. 0-2 ampere, Alternate E. M. F. 0-15 volts. Can be used as currentmeter, voltmeter, and for class-room illustrations.

0140—3. 懸 圈 電 流 計

**Suspended Coil Galvanometer.** Sensitivity:  $1 \times 10^{-7}$  ampere. Provided with lamp and scale.

0141—3 簡 式 正 切 電 流 計

**Simple Tangent Galvanometer.** With single ring.

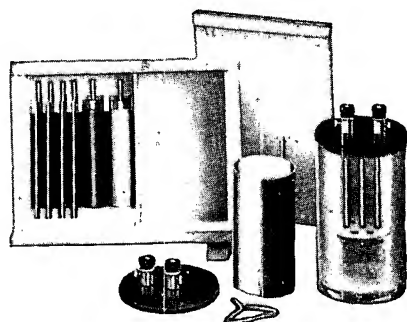
0142—3 弧 光 燈

**Arc Lamp.** Rack and Pinion adjustment type. Provided with a current limiter and condenser (70 mm. diameter), for 220 or 110 volts.

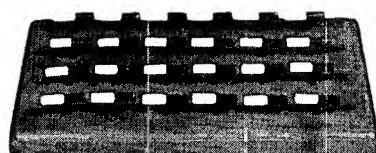
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0143—3



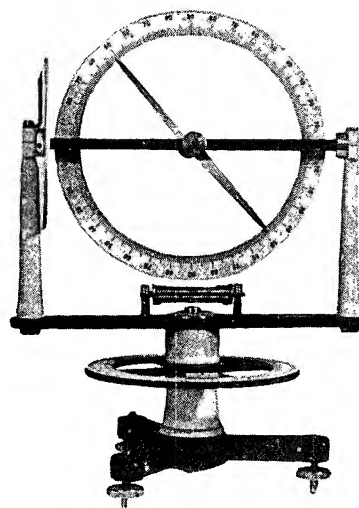
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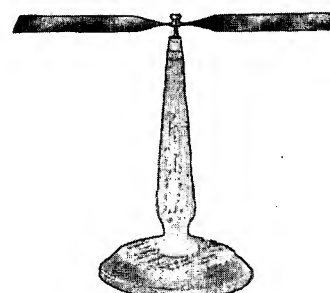
0144—3



0145—3



0149—3



0146—3

0143—3 電 流 的 化 學 效 應 實 驗 器

**Testing Apparatus for Current's Chemical Effect.** A glass jar with a bakelite cover fitted with 2 binding posts and provided with 2 copper plates, 2 lead plates and 2 carbon sticks.

0144—3 條 形 磁 鐵

**Bar Magnet.** Made of an alloy of aluminium, nickel and cobalt. 2 pieces of magnet (152 mm. long x 19 mm. wide) with armature contained in a wooden box.

0145—3 蹄 形 磁 鐵

**Horse-shoe Magnet.** Made of an alloy of aluminium, nickel and cobalt. 90 mm. in height, distance between magnetic poles 46 mm. With armature attached.

0146—3 磁 針

**Magnetic Needle.** On wooden stand with agate bearing.

0147—3 磁 分 子 模 型

**Magnetic Particle Model.** 4 lines of small bar-magnets on a wooden board, each line consisting of 6 bars.

0148—3 鐵 屑

**Iron Filings.** About 100 gm. of iron powder, provided with one piece of fine linen net.

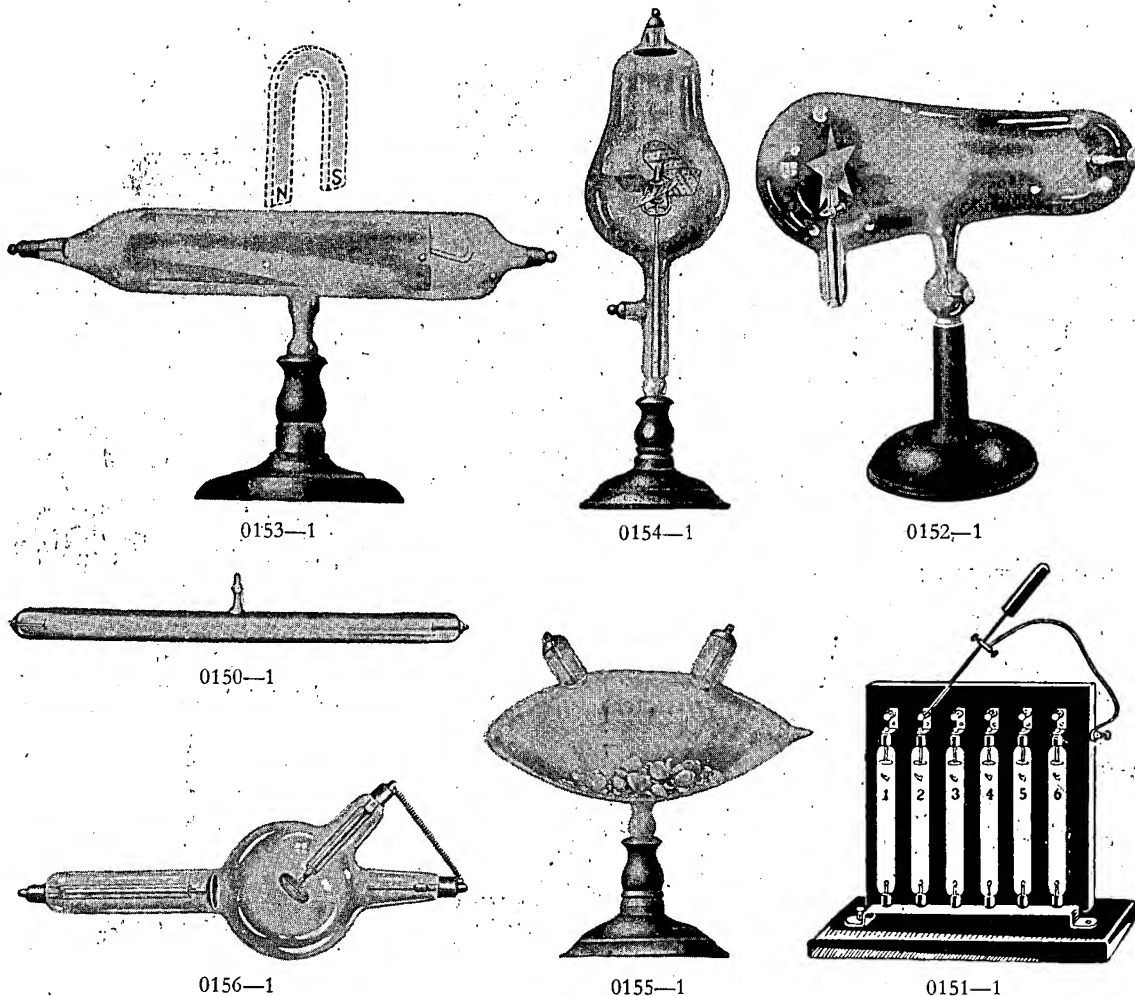
0149—3 磁 傾 儀

**Dip Circle.** One fixed and 2 movable graduated discs mounted on a tripod. The discs are fitted with a vernier and bubble level.

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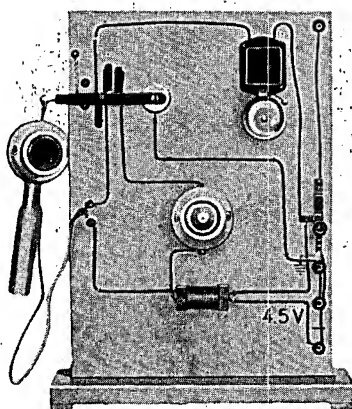


- 0150—I 低氣壓放電管  
**Low Air Pressure Discharge Tube.** One glass tube fitted with an electrode at each end and with an opening in the middle for air drawing. 60 cm. in length and 35 mm. in diameter.
- 0151—I 低氣壓放電管組  
**Low Air Pressure Discharge Tube Set.** 6 discharge tubes, 40 cm. long of vacuum in different degrees, mounted on a vertical wooden stand.
- 0152—I 示直進的陰極射綫管  
**Straight Shot Cathode Ray Tube.** 8 cm. in diameter and 23 cm. in length, mounted on a bakelite stand.
- 0153—I 示磁效應的陰極射綫管  
**Cathode Ray Tube for Magnetic Effect.** 4 cm. in diameter and 27 cm. in length, mounted on a bakelite stand.
- 0154—I 示機械效應的陰極射綫管  
**Cathode Ray Tube for Mechanical Effect.** In a glass bulb (12 cm. in diameter) is fixed a small wheel with blades that give off light of different colours.
- 0155—I 示發生熒光的陰極射綫管  
**Cathode Ray Tube for Fluorescence.** A tube 7.5 cm. in diameter and 18 cm. in length containing broken shells of mollusks.
- 0156—I 倫琴射綫管  
**Rontgen Ray Tube.** Also called "X Ray Tube". Provided with fluorescence screen.

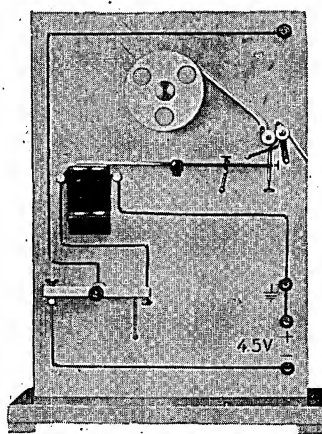
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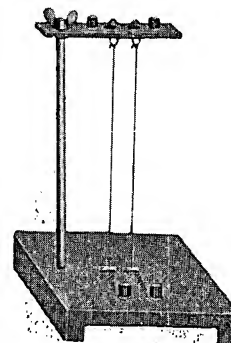
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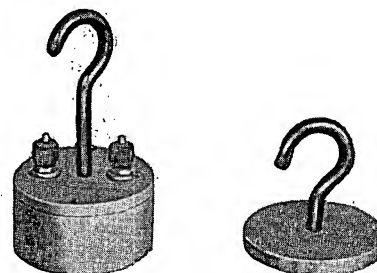
0163—3



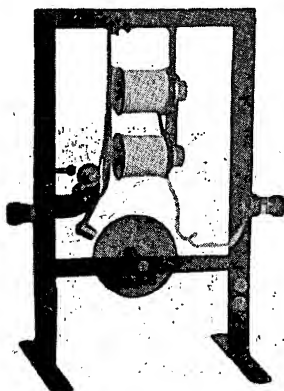
0162—3



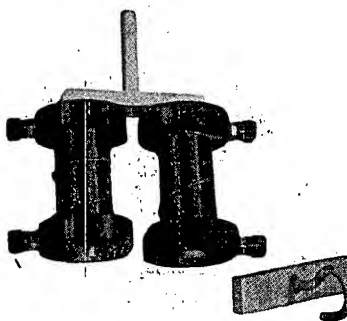
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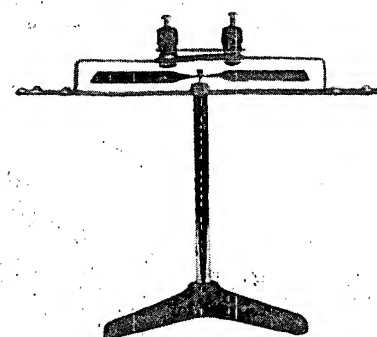
0159—3



0161—3



0160—3



0157—3

## 0157—3 溫 差 電 偶

**Thermo electric Couple.** Made of constantan copper and copper plates with binding posts and magnetic needle.

## 0158—3 通 電 導 體 相 互 作 用 實 驗 器

**Testing Device for Mutual Effect of Charged Conductors** A supporting rod is fixed on a wooden base on which are fixed 2 mercury troughs and binding posts. From the top of the beam are suspended 2 metal wires.

## 0159—3 圓 形 電 磁 鐵

**Circular Electro Magnet.** With a current of 0.8 ampere, it can draw an article of 15 kg. The coil is detachable.

## 0160—3 蹄 形 電 磁 鐵

**Horse shoe Electric Magnet.** Composed of one  $\pi$  shaped iron core, 2 coils wound with insulated wire and an armature. With a supply of 4-5 volts it can draw a heavy body of 12 kg.

## 0161—3 電 鈴

**Electric Bell.** Using a supply of 4-5 volts, either by a hand-operated AC/DC Generator or a storage battery. A clear shadow showing the whole structure of the bell can be projected on the screen by an arc-lamp and projection lanterns.

## 0162—3 電 報 機 模 型

**Telegraph Model.** Recording type, a wooden board is equipped with one key and one recorder, 2 pcs per set so that they can be used to interchange telegraphic communications.

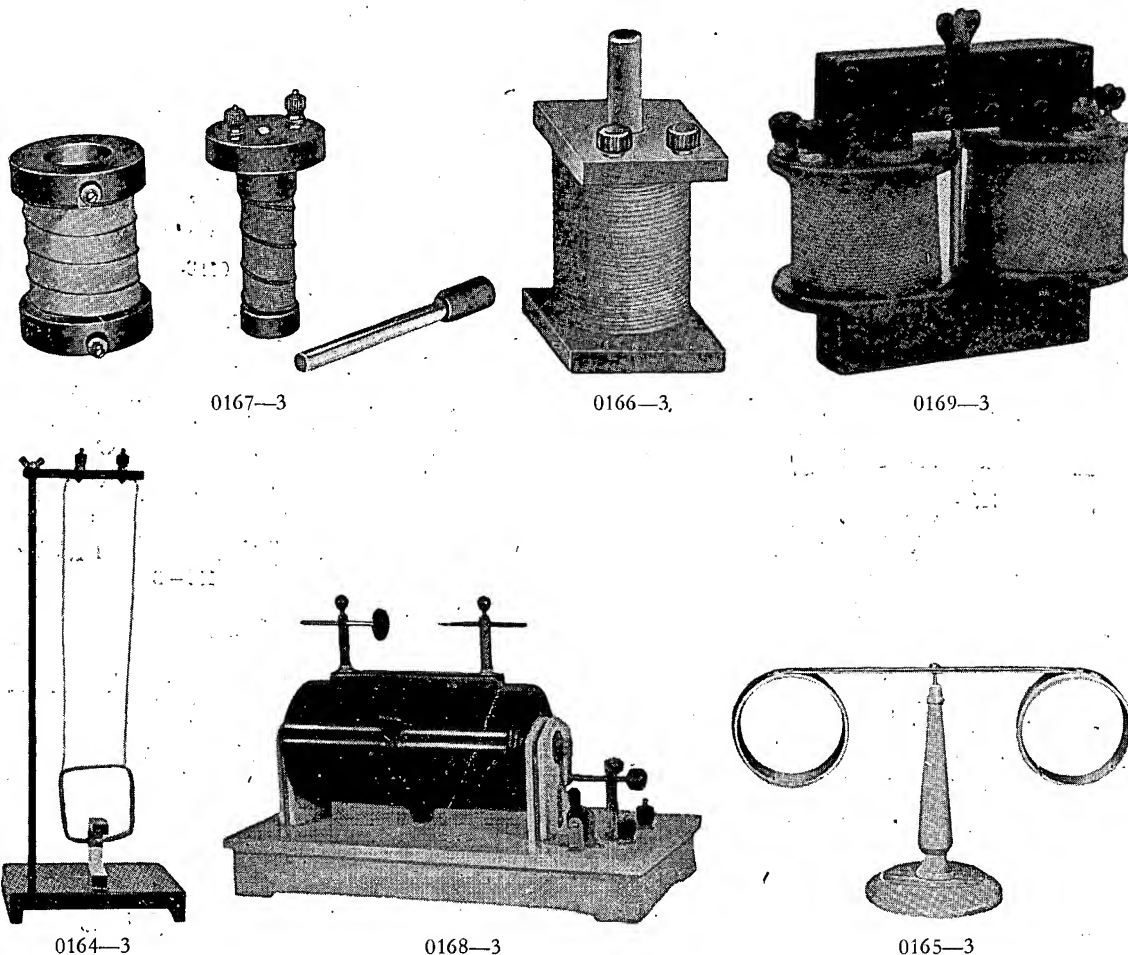
## 0163—3 電 話 機 模 型

**Telephone Model.** Two pieces per set. A wooden board is fitted with one microphone and one receiver. Used for mutual communication.

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電 學 ELECTRICITY



0164—3 左右手定則說明器

**Left Hand and Right Hand Rules Indicator.** One supporting rod with a beam on its top is fixed on a wooden base. From the beam is suspended a square wire streamer.

0165—3 楞次定律實驗器

**Lenz's Law Apparatus.** An aluminium band with 2 aluminium rings, one is closed and the other opened on its side, placed on an agate bearing on top of a wooden stand.

0166—3 自感實驗器

**Self-induction Apparatus.**

0167—3 原副綫圈

**Primary and Secondary Coils.** Both primary and secondary coils are wound with double-cotton covered wire with coloured threads around, for indicating direction of current. The wire core has a bakelite handle. The ratio of primary and secondary coils is 5:1.

0168—3 感應圈

**Induction Coil.** If supplied with 12 volts, the discharge spark can reach from 8-10 cm.

0169—3 可拆變壓器

**Detachable Transformer.** Composed of 2  $\Gamma$  shaped iron cores and 2 coils wound with cotton wire, on wooden cylinder. The primary coil is of 0-110-220 volts and the secondary coil is of 0-6-12 volts. The coil can be detached for explaining the principle of transformer.

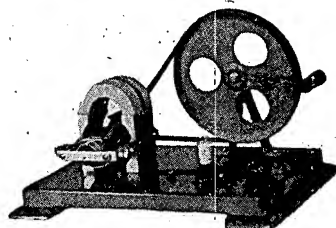
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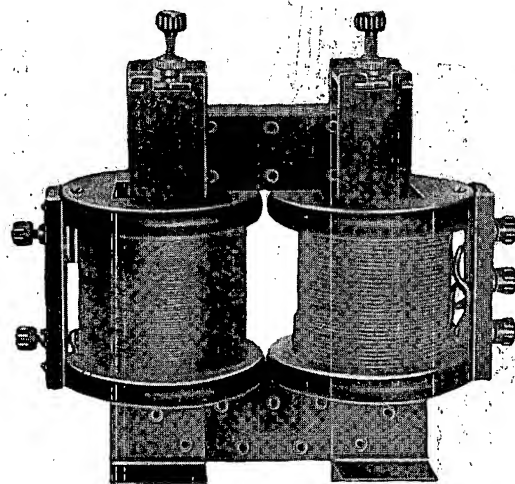
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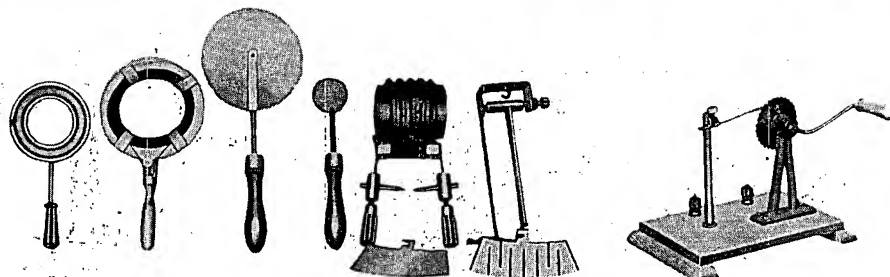
0171—3



0172—3



0170—3



0170—3 附件

## 0170—3 萬用變壓器

**Universal Transformer.** May be used for all electromagnetic tests. The main component parts are a  $\Pi$  shaped iron core, an iron core coupler, two iron core bearing plates, 1 primary coil (0-110-220 volts), and 1 secondary coil (0-36-110 volts, 0-6-12 volts). Maximum load is 50 watts. Accessories are: (1) 1 hand operating intermittent wheel, (2) Zenneck pendulum stand, 1 damping pendulum and 1 non-damping pendulum, (3) Zenneck wheel, (4) Zenneck aluminium block (5) aluminium coil and obstructive plate, (6) coil of induction lamp, (7) fusing pot, (8) welding coil and welding clamp, (9) Barlow's wheel, (10) mercury trough, (11) magnetic insulation plate, (1 copper and 1 aluminium). Fields of test: 1, self-inductance phenomena, 2, mutual-inductance phenomena, 3, Zenneck current (damping pendulum rotating disc and rotating aluminium block), 4, jumping ring test, 5, Lenz's Law, 6, Barlow's wheel, 7, low-tension D. C. to high-tension A. C., 8, for stepdown transformer test, 9, electric heating effects: (1) fusing pot, (3) spot welding, 10, standing wave test, and 11, magnetization and demagnetization tests.

## 0171—3 電機原理說明器

**Dynamo Principle Illustrator.** Cast iron base. The out-shell of the cross section of armature is made of iron plate, 2 electromagnetic poles are fixed on the inner sides. A singlet-armature is mounted cross-wise on the center of magnetic field, fixed at both ends with a support and fitted with 2 interchangeable electric brushes. The out-shell is painted red and blue and provided with a binding post for either colour, red as anode and blue as cathode. Can be rotated with 4-6 volts electric supply for demonstration of D. C. and A. C. dynamo principles.

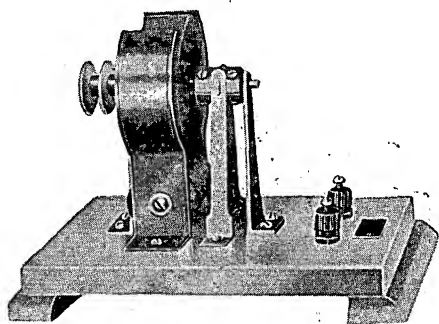
## 0172—3 手搖交直流發電機

**Hand-driven A. C. and D. C. Generator.** Permanent magnetic field, voltage between 2 poles 3 volts. Armature made of an iron core wound with cotton wound wire. Electricity can be generated by revolving the armature with a hand operated wheel. The generator can be turned into alternating or a direct current by changing the position of brushes on the ring during experiment.

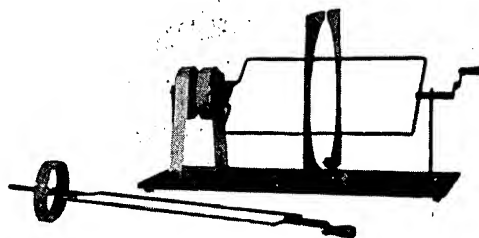
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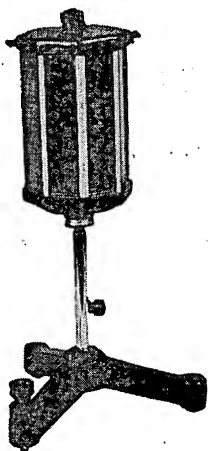
# 電 學 : ELECTRICITY



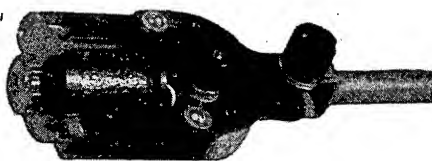
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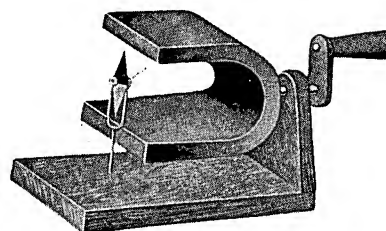
0174—3



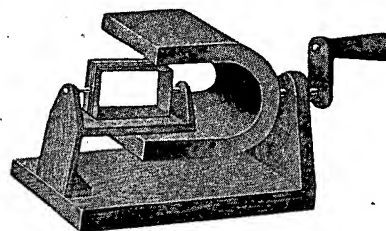
0177—3



0177—3



0175—3



0175—3

## 0173—3 四 伏 特 電 動 機

**Motor, 4 Volts.** A dissected motor on a wooden base with binding posts, for 0.4 ampere current. Can be revolved with a hand driven A. C. and D. C. generator or with a battery.

## 0174—3 交 直 流 發 電 機 電 樞 模 型

**Model of Armature for A. C./D. C. Generator.** Dissection type on wooden base.

## 0175—3 磁 場 轉 動 發 電 機 說 明 器

**Illustrator, Magnetic Field Rotary Dynamo.** Permanent Magnet, with coil and magnetic needle.

## 0176—3 充 電 整 流 器

**Charging Rectifier.** 6 amperes, 24 volts with 1 amperemeter and 1 voltmeter. Used for charging lead storage battery or as D. C. power supply.

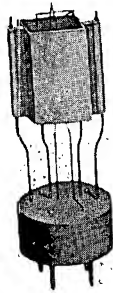
## 0177—3 示 波 器

**Oscillograph.** 2 oscillographs, 1 revolving mirror. The oscillograph consists of a semi-circular magnetic steel and two pieces of soft iron to form a permanent magnetic field. A coil is laid between the two magnetic poles. A vibrator is attached. When applying an electric supply of 12 volts a current of 50-100 milliamperes may be obtained. The revolving mirror is made of 8 prism vertically mounted on a metal tripod and can be rotated freely. On the axial rod is an ascending and descending control. Has a level-screw on the tripod base. Can be used in the tests of general alternating current sine wave, current transformation curve of microphone and of sound wave vibration and transformation of gas flame pressure gauge, etc.

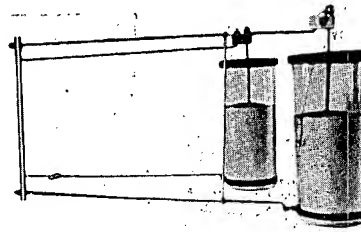
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## 電 學 ELECTRICITY



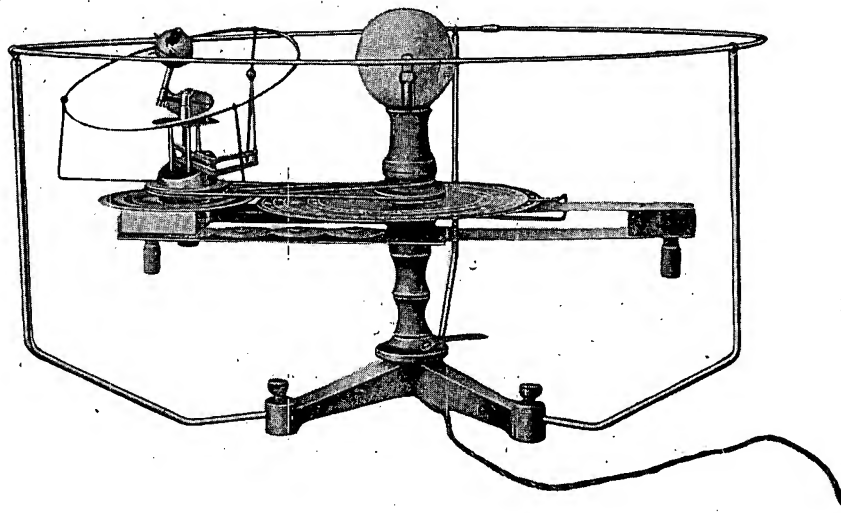
0180—3



0178—2

- 0178—2 電 共 振 演 示 器**  
**Electric Resonator for Illustration.** 2 Leyden jars, one with a fixed rod and one with a sliding rod.
- 0179— 兩 極 電 子 管**  
**2 Electrode Electronic Tube.**
- 0180—3 三 極 電 子 管 模 型**  
**3 Electrode Electronic Tube Model.** Wooden, used for explaining the structure and principle of a triode electronic tube.
- 0181—3 礦 石 收 音 機 演 示 板**  
**Illustrating Plate for Crystal Radio Receiving Set.** Used for showing wave detection of the crystal and the equipment of a crystal radio receiving set. Provided with an earphone.
- 0182—3 單 管 收 音 機 演 示 板**  
**Illustrating Plate for Single-tube Radio Receiving Set.** One No. 30 or No. 32 vacuum tube, with an earphone for showing the installation of a single tube radio receiving set.

## 光 學 OPTICS

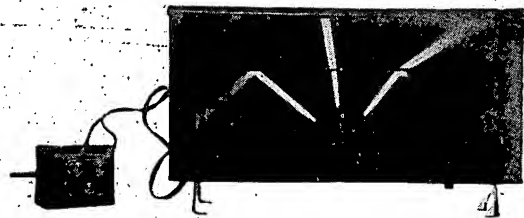


0183—3

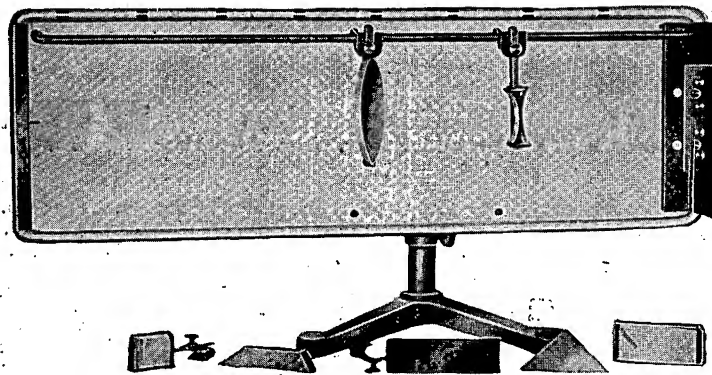
- 0183—3 月 地 運 行 儀**  
**Moon and Earth Motion Model.** "56" type, designed by Chang Ching Teh and others. Mounted on an iron tripod are a seasons plate, a zodiacal circle, a time index, the sun, the moon, the earth, an angle adjuster, an equipment of moon's path and a plate of the phase of the moon. The sun is represented by a specially made lamp bulb, provided with a transformer. The whole set is used for illustration of 22 kinds of ordinary astronomical phenomena.

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光 學 OPTICS



0185-3



0184-3

0184-3 光 具 盤

**Optical Screen.** An iron made white optical screen, is mounted on a tripod. On top of the screen a lens sliding rod, one end of the screen is a slit plate and one reflector holder. On the screen there is a movable lens clamp provided with four small round reflectors, one prism and one Fresnel's lens. Lenses with frames and hooks are: one large double convex lens, one small double convex lens, one small double concave lens, one plane mirror and one concave mirror. Provided with light source.

Fields of experiment: (1) refraction of light through transparent parallel plates. (2) refraction of light through a prism. (3) full reflection of light through a prism. (4) reflection of light projected on a concave mirror. (5) refraction of light through a lens. (6) the relative effects of the change of the conjugate focus of lens or a concave mirror (reflector) and the change of illuminating spot distance or the change of lens or concave mirror distance. (7) image of an object outside the main axis of a lens or a reflector. (8) the light path of Kepler's telescope and of Galileo's telescope and microscope.

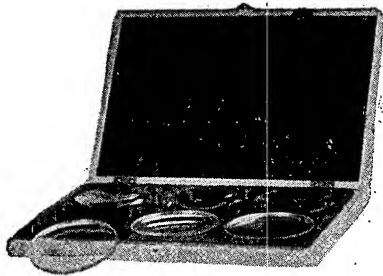
0185-3 全 反 射 演 示 器

**Full Reflection Illustration Apparatus.** Iron rectangular water tank with glass plate on the front, and one cylindrical lamp bulb at the centre of the bottom. The lamp is covered with a metal shade which has unequal slits. It can revolve freely for adjusting the direction of the projected light. There is a water outlet at the bottom of the tank. For 12 volts and 15 watts.

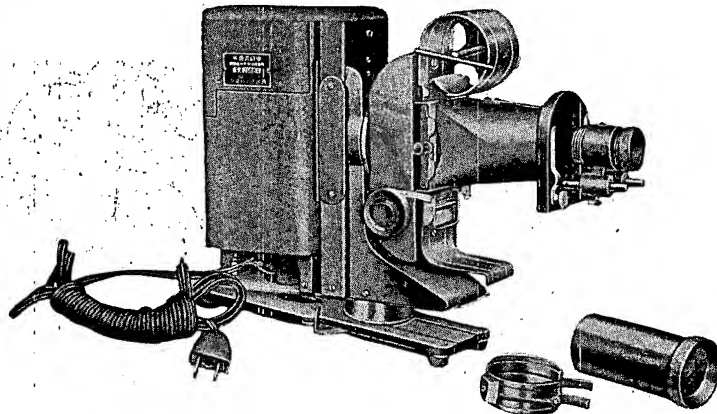
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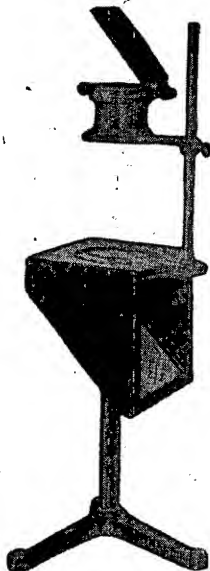
光 學 OPTICS



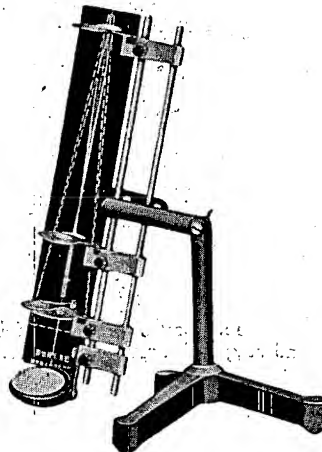
0189-3



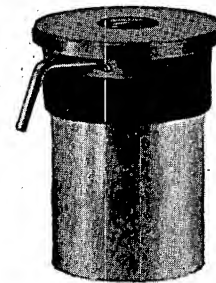
0192-3



0193-3



0195-3



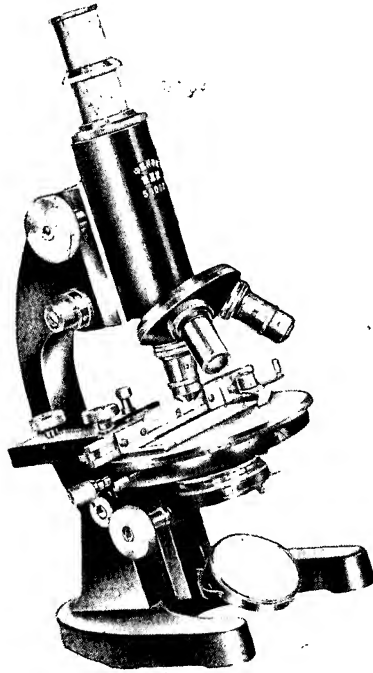
0196-3

- 0186-3 凹 鏡**  
**Concave Mirror.** The surfaces of convex and concave, plated with chromium. With frame.
- 0187-3 雙 凹 透 鏡**  
**Double Concave Lens.** 75 mm. in diameter, 300 mm. focal length. With frame.
- 0188-3 雙 凸 透 鏡**  
**Double Convex Lens.** 75 mm. in diameter, 300 mm. focal length. With frame.
- 0189-3 透 鏡 組**  
**Lens Set.** Consists of the following:  
 Double convex, double concave, Plane convex, Convex concave, Concave convex, Plane concave.  
 Complete set in a wooden box.
- 0190-3 三 稜 鏡**  
**Prism.** 25 × 100 mm. Angle 60°. With frame.
- 0191-3 直 角 三 稜 鏡**  
**Prism, Right Angle.** 40 mm. in length. Right angle, 45° & 90°.
- 0192-3 顯 微 幻 燈 機**  
**Micro-Projector.** Metal made. 21 cm. high. With achromatic lens, 130 mm. focal length. With microscopic device, for magnifying biological section slides and showing 32 mm. films and single slides.

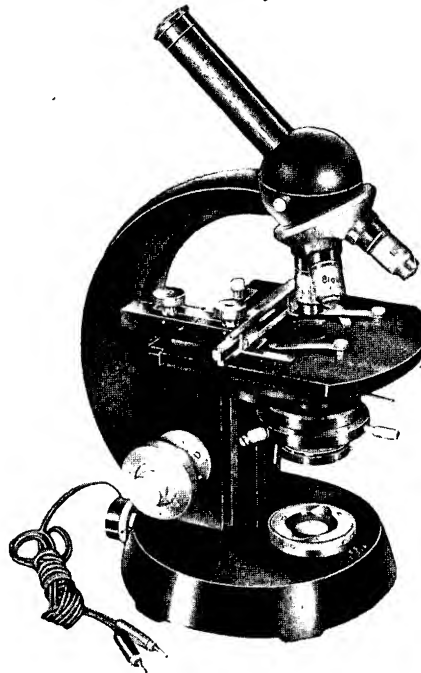
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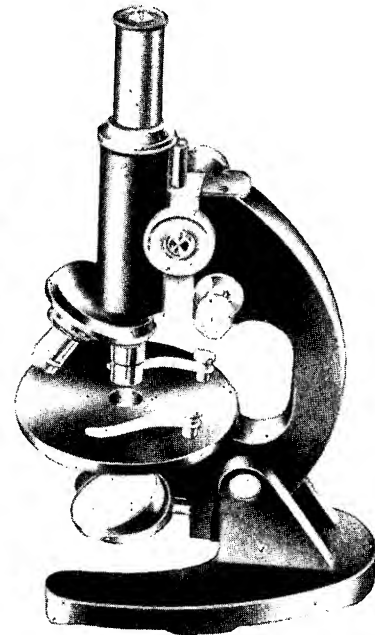
光 學 OPTICS



0194-4A



0194-4B



0194-3

0193-3 幻燈反射裝置

**Projector Reflecting Device.** Without light source. Fitting together with a projector or other light source it can show all horizontally laid instruments on screen, like the illustrator of Brownian movement, etc.

0194-3 生物顯微鏡“01”型

**Model “01” Biological Microscope.** Best suited for school experiment and laboratory purpose. Vertical Monocular body. Round stage with revolvable quintuple diaphragm. Coarse and fine adjustments. Revolving Nose-piece for 3 objectives

Optical Equipments:

Achromatic Objectives: 8× 45×  
Huygens Eye-pieces: 5× 10× 15×  
Total Magnification: 40× — 675×

0194-4 A 生物顯微鏡“05”型

**Model “05” Biological Microscope.** A ruggedly constructed instrument designed for general work in the laboratories of educational and research institutes, hospitals, clinics and industries.

Vertical Monocular body. Round stage with detachable mechanical stage. Rack and pinion with Abbe condenser Iris diaphragm. Lever fine adjustment 0.01 mm. Revolving, dust-proof, centered and parfocalized nose-piece.

Optical Equipments:

Achromatic Objectives: 8× 45× 100× (oil imm)  
Huygens Eye-pieces: 5× 10× 15×  
Total Magnification: 40× — 1500×

0194-4 B 大型顯微鏡“08”型

**Model “08” Research Microscope.** Best suited for research institutes, clinics, hospitals and universities.

Inclined monocular body, inclination 45°. Fixed square mechanical stage. Rack and pinion with Condenser (N. A. 1.30). Iris diaphragm. Fine adjustment by means of ball bearing device, 0.002 mm, graduation. Revolving, quadruple Nose-piece.

Optical Equipments:

Achromatic Objectives: 8× 45× 100× (oil imm. equipped with built-in spring device)  
Huygens Eye-pieces: 5× 10× 15×  
Total Magnification: 40× — 1500×

Illumination: Built-in Electric illuminating device.

0195-3 顯微鏡模型

**Microscope Model.** Vertical. May be used both as Magnifier and microscope. With light-path diagram plate explaining the formation of images of microscope and magnifier.

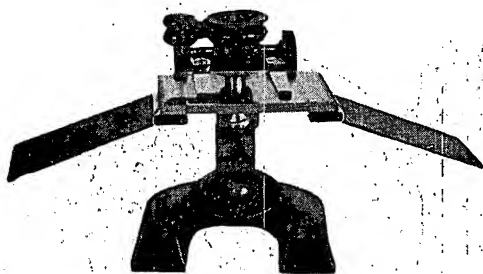
0196-3 指示接目鏡

**Indicating Eye-piece.** 10x, with a movable pointer. Can be used with a biological microscope.

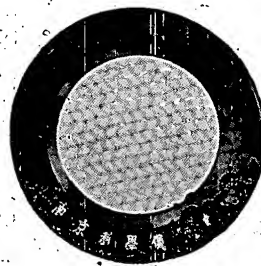
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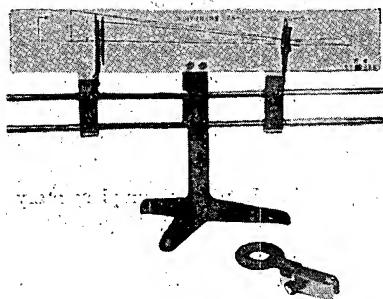
光 學 OPTICS



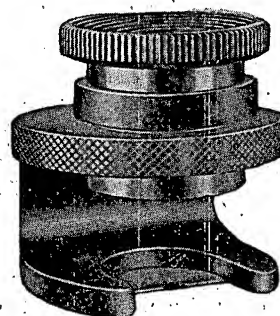
0197—3



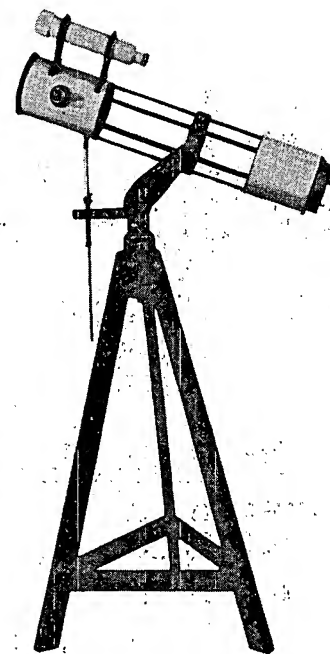
0202—3



0199—3



0198—3



0201—3

0197—3 解剖放大鏡

**Dissecting Microscope.** Bakelite frame. With rack and pinion adjustment, glass stage and metal set-in plate. Equipped together with achromatic lens 5x, 10x, 20x, one piece each. For biological dissection and magnification purposes in colleges and middle schools.

0198—3 讀數放大鏡

**Reading Magnifier.** Magnifying power 10x. Reading up to 1/10 mm.

0199—3 望遠鏡模型

**Telescope Model.** Two metal sliding rods fixed on a tripod. Lens can be fixed on any given point thereof. Behind the sliding rods is a vertical metal diagram plate of light-path of which one side is the lightpath diagram of Galileo's telescope and the other side the Kepler's. Consisting of three pieces of lenses. Double convex of large focal length is the common objective, small double convex is the eyepiece of Kepler's telescope, and the double concave lens is the eyepiece of Galileo's telescope. It is used to demonstrate the image formation of Kepler's & Galileo's telescopes.

0200—3 稜鏡雙筒望遠鏡模型

**Model of Prism Binoculars.** \*Half structure. With light-path diagram plate.

0201—3 天文望遠鏡

**Telescope, Astronomical.** With reflecting telescope fixed on tripod. Magnifying power 100x-150x, with a star-detecting sight.

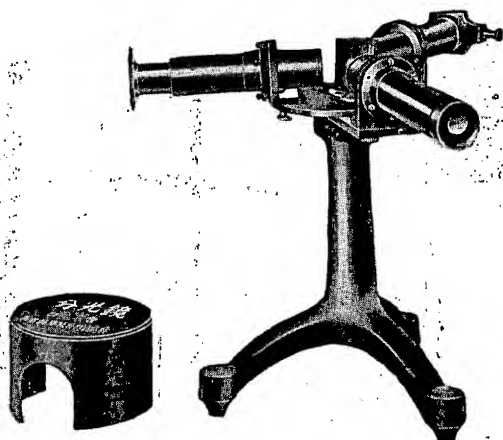
0202—3 牛頓環

**Newton's Ring.** Made of plane-convex lens and plane glass lapped together. Set in a Bakelite round frame. Demonstrate the interference of light. Also can show on screen with the aid of a projector.

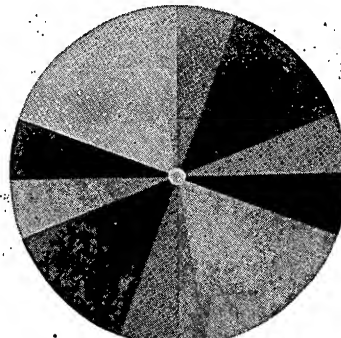
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# 光 學 OPTICS



0205—3



0203—3

0203—3 七 色 板

**Color Disc.** Metal plate, finely printed in seven colors. To be fixed on centrifuge.

0204—3 色 玻 璃

**Colored Glass Plates.** Red, yellow, green, blue and violet, one piece each. Used for complementary colour and monochromatic experiments.

0205—3 分 光 鏡

**Spectroscope.** Telescope mounted on tripod, 7× achromatic lens, focal length 13 cm. objective diameter 2 cm., collimator 13 cm. in length. Scale tube contains gelatinous thin film graduated into 250 parts in one cm. and is set in glass plates. Used to analyze spectrum. The source of light may adopt natural rays, alcohol lamp, sodium lamp and spectrum tube.

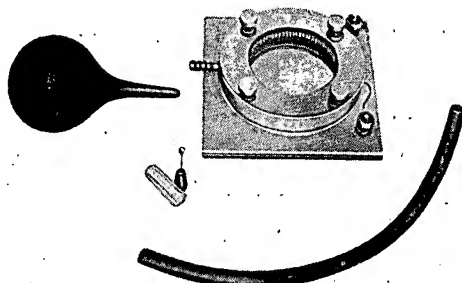
0206— 演 示 光 電 管

**Demonstrating Photoelectric Tube.**

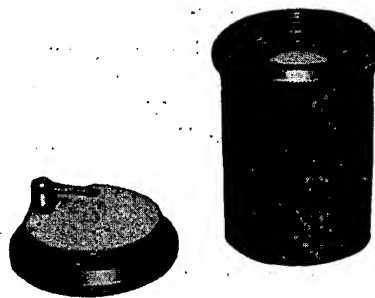
0207— 氧 化 亞 銅 光 電 池

**Cuprous Oxide Photoelectric Cell.**

## 原 子 結 構 學 ATOMIC STRUCTURE



0208—2



0209—2

0208—2 威 耳 遜 雲 室

**Wilson's Cloud Chamber.** Round iron frame with glass set on both sides, and fixed on a wooden base (136×136mm.). Containing therein radio-active substances. Ventilating spout on side. Attached with rubber ball and rubber tube.

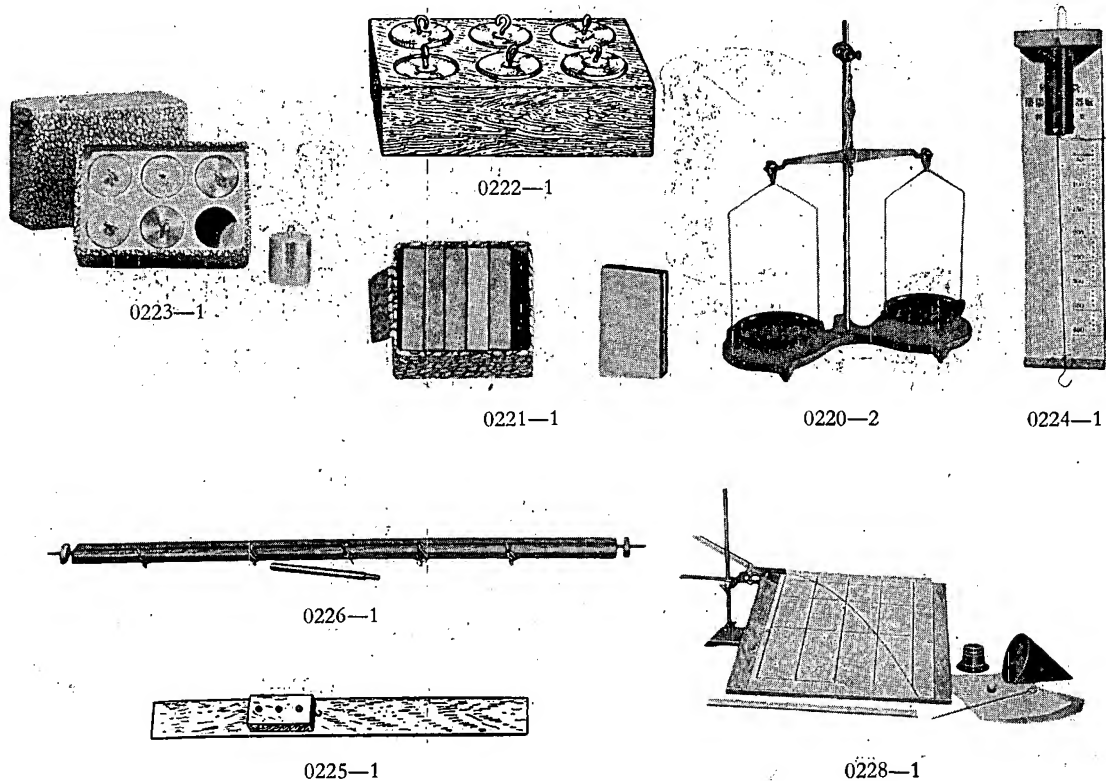
0209—2 閃 爍 鏡

**Spinhartoscope.** Metal tube 28 mm. in diameter, 38 mm. high. Lens on top. The bottom filled with radio-active substance and fluorescence pasting.

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學生物理實驗儀器 STUDENT'S EXPERIMENT INSTRUMENTS

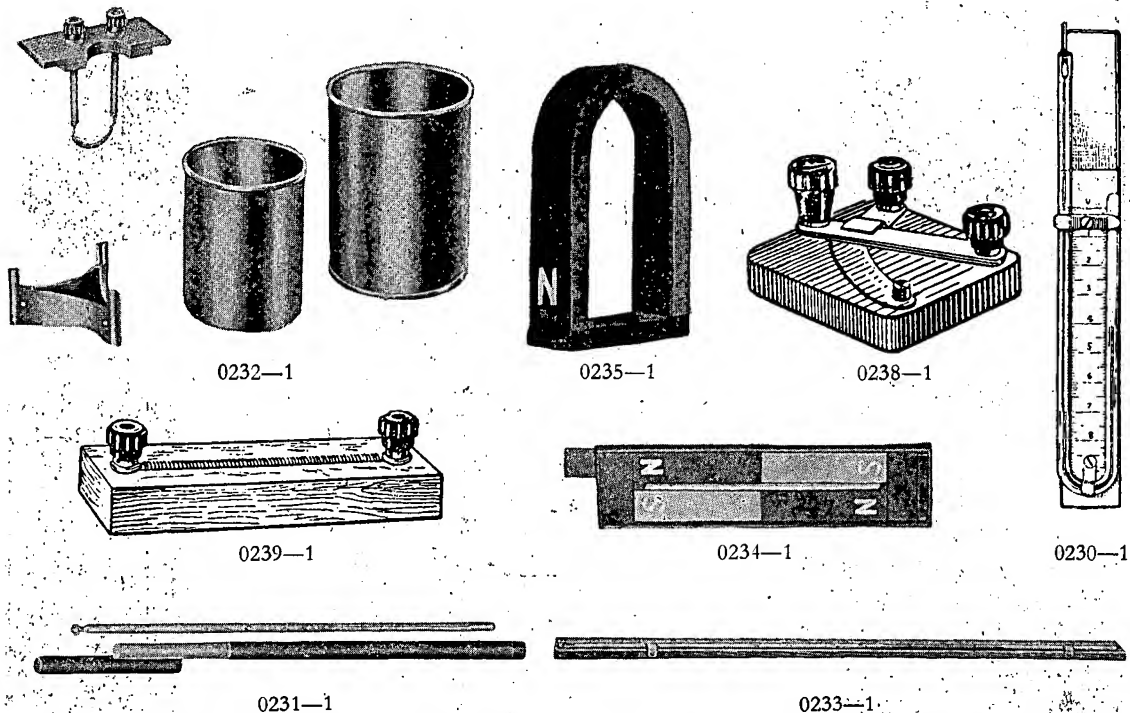


- 0220—2 支 架 天 平  
**Beam Balance.** Capacity 200 gm. Sensitivity 1/5 gm. With Weights.
- 0221—1 長 方 體 組  
**Rectangular Blocks.** Brass, aluminium, and iron, two of each kind, 40×25×8 mm.
- 0222—1 鈎 碼  
**Weights, with Hook.** Pressed out with bakelite and iron powder. Weight 100 gm. each, 6 pieces a set in bakelite box.
- 0223—1 金 屬 圓 柱 體  
**Cylindrical Bodies, Metal.** Brass, aluminium, iron cylindrical bodies, 2 pieces of each kind, 30 mm. in diameter, and 30 mm. in height.
- 0224—1 400 克 測 力 計  
**400 gm. Spring Balance.** Maximum capacity 400 gm. minimum division 10 gm.
- 0225—1 摩 擦 計  
**Friction Tester.** Also called "Slant board", made of wood, area 500×50×4 mm., with a rectangular wooden block.
- 0226—1 槓 桿  
**Lever.** Made of wood 50 cm. in length, with adjusting screws on both ends, including a metal axle rod and a steel ring.
- 0227—1 力 矩 盤  
**Disc of Moment of Force.** A wooden disc, 25 cm. in diameter, with a metal axle rod and 4 steel needles attached.
- 0228—1 平 拋 實 驗 裝 置  
**Level Throw Apparatus.** A wooden board, 40×40 cm. with projecting grooves and a paper cone.

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## 學生物理實驗儀器 STUDENT'S EXPERIMENT INSTRUMENTS

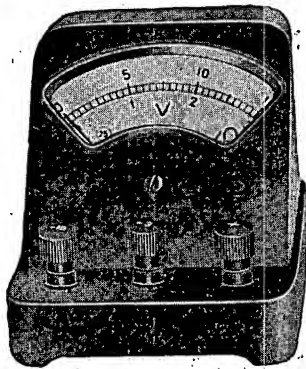


- 0229—1 金屬球  
**Metal Ball.** 20 mm. in diameter, with a hole in the center.
- 0230—1 小型水銀氣壓計  
**Small Mercury Barometer.** Bakushenski type small barometer. A "U" shaped tube fixed on a millimeter scaled metal plate. Attached with 50 gm. of mercury and a funnel.
- 0231—1 溫度計  
**Thermometer.** 10°C—100°C, 1°C for each division.
- 0232—1 量熱器  
**Calorimeter.** Inner tube made of aluminum, capacity 250 cubic cm. Weight 50 gm. Attached with spiral resistance wire of 2 ohms.
- 0233—1 玻意耳—馬略特定律實驗器  
**Boyle-Mariotte's Law Apparatus.** On a millimeter graduated straight ruler fixed a glass tube, 50 cm. long, attached with 40 gm. of mercury and a funnel.
- 0234—1 條形磁鐵  
**Bar Magnet.** A pair of magnetic bodies in paper box. Attached with armature.
- 0235—1 蹄形磁鐵  
**Horse-shoe Magnet.** In paper box, with armature.
- 0236—1 鐵屑盒  
**Iron Filings Box.** A tin box of 50 gm. of iron filings. The cover of the box has many small holes.
- 0237—1 導線  
**Conductive Wire.** Insulated wire with contact plates at both ends. Consists of 2 wires 50 cm. in length, 3 wires 30 cm. in length and 3 wires 15 cm. in length.
- 0238—1 單刀開關  
**Single Lever Switch.** Wooden base, 12 volt, 5 amp.
- 0239—1 電阻圈  
**Resistance Ring.** 1 ohm, 2 amp.; 2 ohms, 2 amp.; 4 ohms, 1 amp. each a piece.

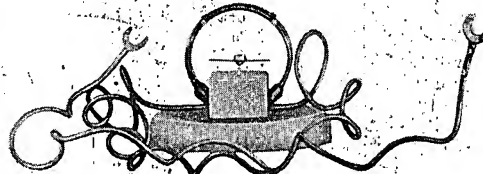
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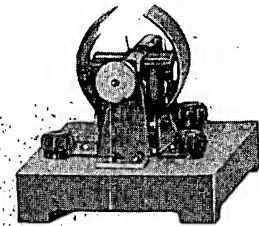
學生物理實驗儀器  
STUDENT'S EXPERIMENT INSTRUMENTS



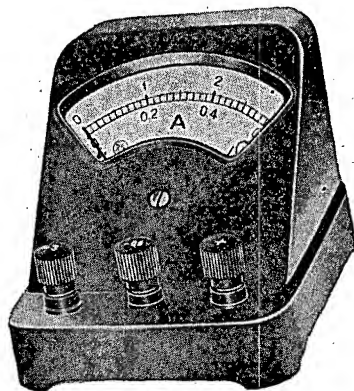
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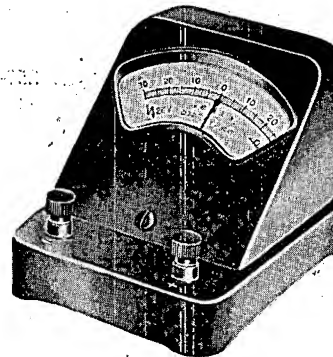
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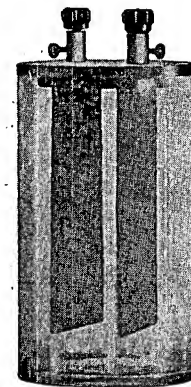
0242—1



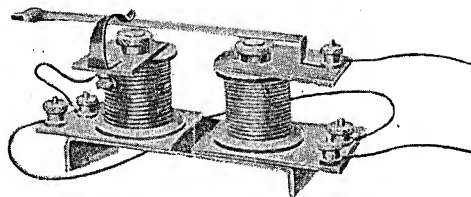
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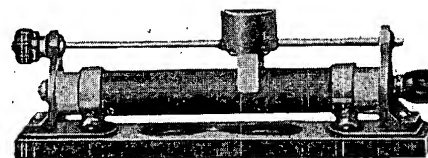
0445—3



0243—1



0241—1



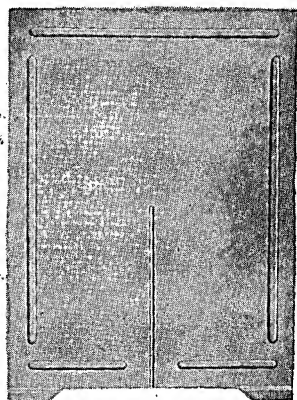
0240—1

- 0240—1 滑動變阻器  
Sliding Rheostat. Resistance value 6-7 ohm. 2 amp.
- 0241—1 電磁替續器  
Relay, Magnetic. Consists of 2 coils each wound on an iron core and 3 electro-magnetic components.
- 0242—1 電機模型  
Dynamo Model. Composed of stator, rotor, commutator and brushes. Detachable.
- 0243—1 銅電解器  
Electrolytic Cell, Copper. Consists of 1 glass jar, 1 bakelite cover with 2 binding posts, and 2 copper electro plates.
- 0244—1 簡易檢流計  
Simple Current Tester. Composed of magnetic needle and coil. Fixed on a wooden base.
- 0445—3 靈敏電流計  
Sensitive Galvanometer. Slope-shaped. Range of survey: 200-300 milliamperes.
- 0245—3 直流安培計  
D. C. Ampere Meter. Moving coil type, slope-shaped. Range of survey: 0-0.6-3 amperes with an error of  $\pm 2.5\%$ .
- 0246—3 直流伏特計  
D. C. Voltmeter. Moving coil type, slope-shaped. Range of survey: 0-3-15 volts with an error of  $\pm 2.5\%$ .

38

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學生物理實驗儀器 STUDENT'S EXPERIMENT INSTRUMENTS



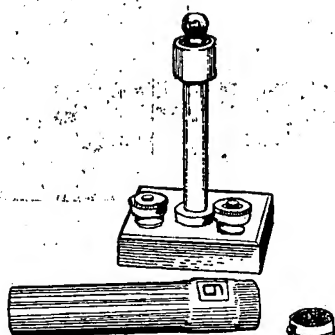
0250—1



0252—1



0251—1



0253—1



0254—1



0247—1

- 0247—1 雙凸透鏡 No. 1  
Double Convex Lens, No. 1. Mounted on iron stand, focal length 14 cm.
- 0248—1 雙凸透鏡 No. 2  
Double Convex Lens, No. 2. Mounted on iron stand, focal length 7 cm. (same type as 0247—1).
- 0249—1 雙凹透鏡 No. 3  
Double Concave Lens, No. 3. Mounted on iron stand, focal length 9 cm. (same type as 0247—1).
- 0250—1 縫屏  
Slit Screen. Made of iron plate. 12×16 cm. Width of slit 0.8 cm.
- 0251—1 毛玻璃小光屏  
Ground-glass Screen, Small. Iron made, one piece of ground-glass is mounted on the stand, 6×9 cm.
- 0252—1 方格小光屏  
Cross Mesh Screen, Small. One piece of cross-mesh glass, with millimetres graduation, mounted on iron stand. Area 6×9 cm.
- 0253—1 光源燈座  
Stand of Light Source Lamp. Lamp stand is made of iron, provided with light bulb of 2.5 volts.
- 0254—1 小平面鏡  
Small Plane Mirror. Mirror fixed on wooden board, 4×9 cm.

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學生物理實驗儀器 STUDENT'S EXPERIMENT INSTRUMENTS



0258—1



0259—1



0256—1



0257—1



0260—1



0255—1

- 0255—1 玻璃磚  
**Glass Brick.** Trapezoid glass brick, unequal sides. Both ends may also be used as a prism.
- 0256—1 方座支架  
**Square Base Support.** Also called "Iron Plate Base". Rectangular base of cast iron, with a supporting rod fixed thereon, 60 cm. in length.
- 0257—1 複夾  
**Compound Clamp.** Also called "Cross Clamp". Made of cast iron.
- 0258—1 燒瓶夾  
**Flask Clamp.** Duck-bill opening, may also be used as an ordinary clamp.
- 0259—1 鐵環  
**Iron Ring.** Small ring with a hole for suspending single pendulum.
- 0260—1 鐵圈  
**Iron Hoop.** 35 mm. in diameter, 10 mm. high, 2 mm. thick.
- 0261—1 刻度尺  
**Scale.** Wood make, 35 mm. in length, with millimeter graduation.
- 0262—1 三角尺  
**Triangle.** The inclined side 25 cm. in length. Angles 30°, 60°, 90° (opposite side with millimeter graduation.)
- 0263—1 量角器  
**Protractor.** Small type, made of plastic.
- 0264—1 量筒  
**Measuring Cylinder.** 30 mm. in diameter. Each graduation 1 c. c. Capacity 100 c. c.
- 0265—1 酒精燈  
**Alcohol Lamp.** Glass made.

40

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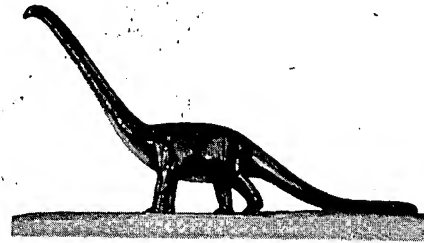
## 古生物模型 I. PALEOLOGICAL MODELS



0293



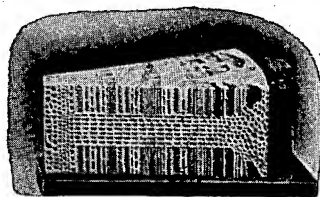
0292



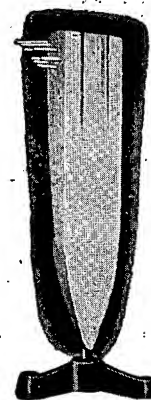
0291

- 0290 馬足進化模型**  
**Evolutional Steps in Horse's Leg.** A group of 6 earthen models. Shows the fore-legs of horses in different ages from Eocene to recent times.
- 0291 草食恐龍模型**  
**Herbaceous Dinosaur.** Restored figure from the fossil discovered at Ma Men Si in Szechuen. Made of papier mache.
- 0292 肉食恐龍模型**  
**Carnivorous Dinosaur.** Restored figure from the fossil of Chinese Lufengosaurus. Made of papier mache.
- 0293 始祖鳥化石及復原模型**  
**Fossil and Restored Figure of Archeornis.** A group of 2 models. The fossil is made of plaster, 49 cm. long and 39 cm. wide. The restored figure is made of papier mache and mounted on a wooden base.

## 植物模型 II. BOTANICAL MODELS



0295



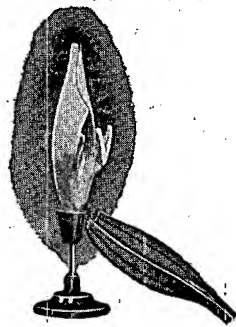
0296

- 0295 雙子葉植物莖模型(椶木)**  
**Dicot Stem.** A fan-shaped portion of a magnified 3-year Tilia stem. With cross and longitudinal sections. Shows the epidermis, cortex, vascular bundles, etc. Made of papier mache and mounted on a wooden base.
- 0296 根縱剖模型**  
**Root.** Made of plaster, shows structures of the root cap, growing point, region of elongation, region of root hairs, central stele and cortex.

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## 植物模型 II. BOTANICAL MODELS



0298



0299

## 0297 葉的縱橫斷面模型

**Dicot Leaf.** A papier mache mould, 30 cm. × 15 cm. × 12 cm. With cross and longitudinal sections, shows the epidermis stomata, palisade tissue, spongy tissue, veins and bundles.

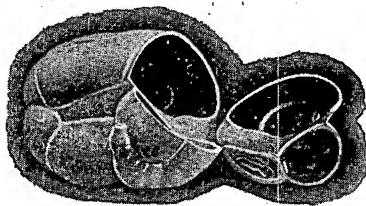
## 0298 小麥花模型

**Wheat Flower.** Made of papier mache, 40 times enlarged. Shows the lemma, palea, lodicules pistil and stamens. The lemma is removable. Totally mounted on a wooden base.

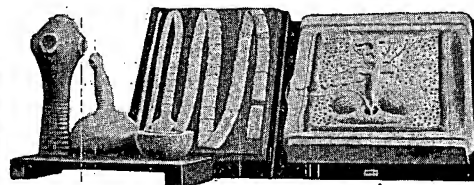
## 0299 桃花模型

**Peach Flower.** Made of papier mache, 12 times enlarged, Calyx and carpel cut longitudinally, mounted on a tripod.

## 動物模型 III. ZOOLOGICAL MODELS



0300



0302



0301

## 0300 反芻胃(牛胃)模型

**Ruminant Stomach of Ox.** Two fifths the natural size. Shows the external and internal structures of the rumen reticulum psalterium and abomasum. The whole is divided into two parts. The smaller one is dismountable to show the inner surface of the esophageal groove.

## 0301 水螅縱斷模型

**Hydra.** 35 cm. in height measured from the mouth to the basal disc. Made of papier mache. With a bud. The whole model but the lower one fourth cut longitudinally. Shows the tentacles, gastrovascular cavity, ovary, spermary and germ layers. Mounted on a wooden base.

## 0302 有鈎蠟蟲生活史模型

**Life History of Tapeworm (Hooked).** A group of five models. 1. A whole worm sculptured in relief, showing various segments. 2. Mature segment showing nervous excretory and reproductive organs. 3. Scolex with suckers and hooks. 4. Hexacanth embryo. 5. Bladder worm. Mounted respectively on three wooden bases.

## 0303 草履蟲模型

**Paramecium.** Made of plaster. 35 cm. long. Divisible along the middle line. Shows the macro-nucleus, micronucleus, food vacuoles, contractile vacuoles, etc. Covered superficially with cilia. Mounted on a wooden base by four pillars.

## 0304 蝗蟲解剖模型

**Locust, Dissection of.**

## 0305 蚯蚓解剖模型

**Earth-worm, Dissection of.**

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## 生理模型 IV. HUMAN ANATOMICAL MODELS

## 0306 人體骨骼模型

**Human Skeleton.** Natural size, made of papier mache. Mounted with a ring for hanging on an iron stand. A complete skeleton of man, with bones dismountable. The skull cut horizontally through the front bone to show the bottom of the skull, ethmoid bone, sphenoid bone, etc.

## 0307 人體半身內臟解剖模型

**Dissection of Human Trunk with Head.** Natural size. With skin on the right half of the body and superficial muscles on the left. Ventral body wall dismountable. The visceral organs, including the heart, lungs, pancreas, intestine stomach, kidneys, and bladder, are all removable and dissected. The model is divided totally into 16 pieces, and made of papier mache. Mounted in upright position on a wooden base.

## 0308 眼解剖模型

**Dissection of Eye.** Five times the natural size. Includes the orbital bones, eye ball, eye muscles, lacrimal gland; optical nerve, etc. Made of papier mache. Divided into six parts. The eye ball is dissected horizontally.

## 0309 牙解剖模型

**Dissection of Teeth.** Includes an incisor and a molar. 30 times the natural size. Cut longitudinally through the middle line. Shows structures of the enamel, dentine cementum and pulp. Mounted on a wooden base.

## 0310 腦解剖模型

**Dissection of Brain.** 1.5 times natural size. Made of papier mache. Includes 6 parts. Right cerebral hemisphere is dissected transversely. The left one, longitudinally. The cerebellum and the brain stem are dissected sagittally. Shows structures of the different parts of the brain, and the twelve pairs of cranial nerves. Mounted in a paper box.

## 0311 皮膚模型

**Skin.** Made of plaster. A combined typical model of scalp and scalp. Sculptured in relief. Shows the different layers of the epidermis, sweat gland, hair follicle, sebaceous gland, sensory corpuscles, blood vessels and nerves. Mounted on a wooden base.

## 0312 心臟解剖模型

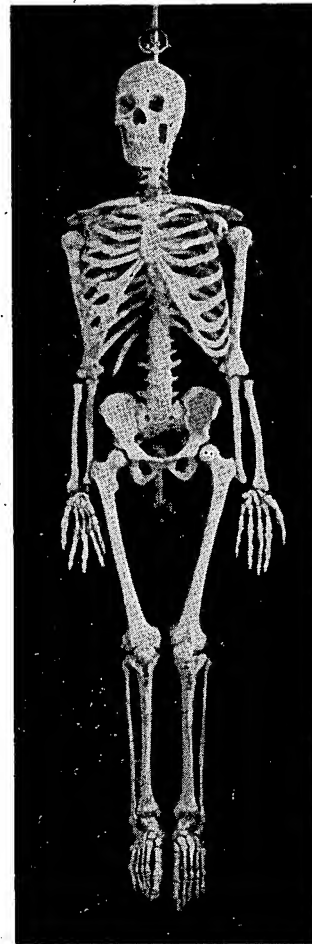
**Dissection of Heart.** Made of papier mache. Double the natural size. Divided into 5 pieces. With dissectible ventricles and atriums, showing the tricuspid, mitral and semilunar valves, and the orifices of blood vessels. Mounted in natural position on a wooden base.

## 0313 耳解剖模型

**Dissection of Ear.** Made of papier mache. Divided into 4 pieces. Shows structures of the external acoustic meatus; tympanic cavity, and the inner ear. The labyrinth is dismountable. The cochlea is dissected along the axis longitudinally to show the bony spiral lamina and membranous cochlea. Mounted on a wooden base.

## 0314 喉頭解剖模型

**Dissection of Larynx.** Made of papier mache. Divided into 5 pieces. Shows the hyoid bone, thyroid cartilage, epiglottis, trachea, and related muscles. Along a sagittal section the model is divided into two symmetrical halves to show the vocal cords and ventricular ligaments. Mounted in upright position on a wooden base. On the center of the base fixed a wooden rod, wrapped in cloth and just enclosed in the trachea.

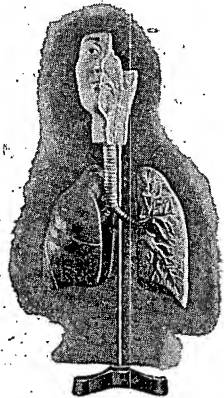


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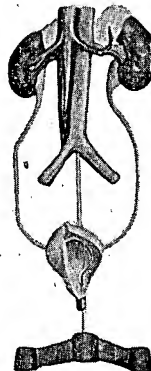
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## 生理模型 IV. HUMAN ANATOMICAL MODELS



0317



0315



0316

## 0315 泌尿系統模型

**Urinary System.** Made of papier mache. Natural size. Includes the left and right kidney, ureters and bladder. The left kidney is cut open dorsally to show the cortex, medulla, calyx and pelvis. The left ventral half of the bladder is cut open to show the inner surface of the bladder wall. The orifices of ureters and urethra. Mounted in natural position on a wooden base.

## 0316 消化系統模型

**Digestive System.** Sculptured in relief and made of papier mache. Natural size. Show the alimentary canal, digestive glands and their ducts. The stomach and a portion of the intestine cut open to show the structure of their inner surfaces. Mounted in a wooden frame.

## 0317 呼吸系統模型

**Respiratory System.** Made of papier mache. Natural size. Shows the nasal cavity, larynx, trachea and lungs. The left lung is cut open through the hilus. Mounted on a wooden base with a metallic pillar.

## 0318 神經系統模型

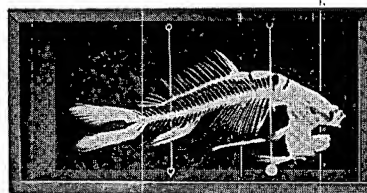
**Nervous System.**

## 0319 循環系統模型

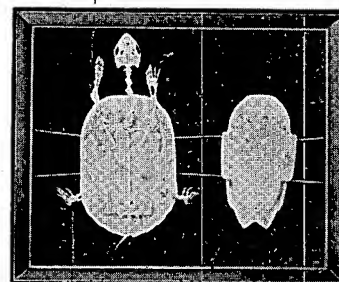
**Circulatory System.**

0320 條件反射及無條件反射模型  
Conditioned and Unconditioned Reflex.

## 骨骼標本 V. SKELETONS



0321



0322

## 0321 魚骨標

**Carp (or Silver Carp) Skeleton.** Mounted in natural position in a dust-proof glass case. Thoroughly bleached. The right operculum is taken off and mounted specially on the base. A trunk and a caudal vertebrae are added extra. With labeled key card.

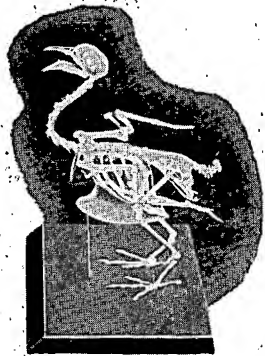
## 0322 龜骨標

**Turtle Skeleton.** Mounted in natural position in a dust-proof glass case. The plastron is separately mounted beside and left to the carapace. With labeled key card.

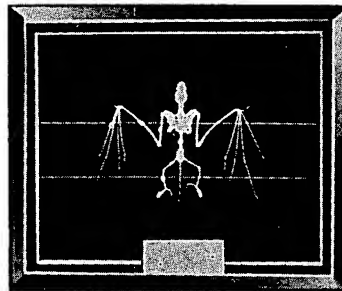
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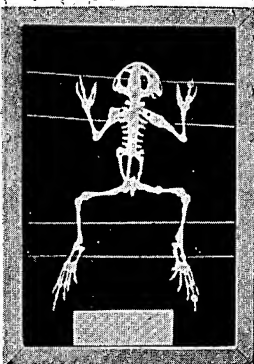
骨骼標本 V. SKELETONS



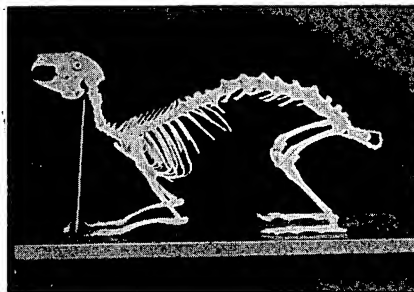
0323



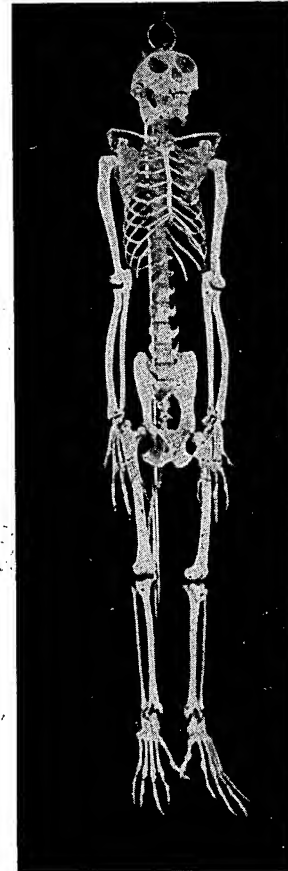
0325



0324



0326



0327

0323 鴿 骨 骼

**Pigeon Skeleton.** Specimen stands on a wooden base in a dustproof glass case. Skeleton thoroughly bleached. With labeled key card.

0324 蛙 骨 骼 ( 蟾 蜍 骨 骼 )

**Frog (or Toad) Skeleton.** Mounted in dustproof glass case. Skeleton thoroughly bleached and connected in natural position. The hyoid is attached to the glass plate ventral to the specimen. With labeled key card.

0325 蝙 蝠 骨 骼

**Bat Skeleton.** Specimen mounted in natural position in dustproof glass case. Skeleton thoroughly bleached. With labeled key card.

0326 兔 骨 骼

**Rabbit Skeleton.** Specimen mounted on a wooden base in a dustproof glass case. Skeleton thoroughly bleached and connected in natural position. With labeled key card.

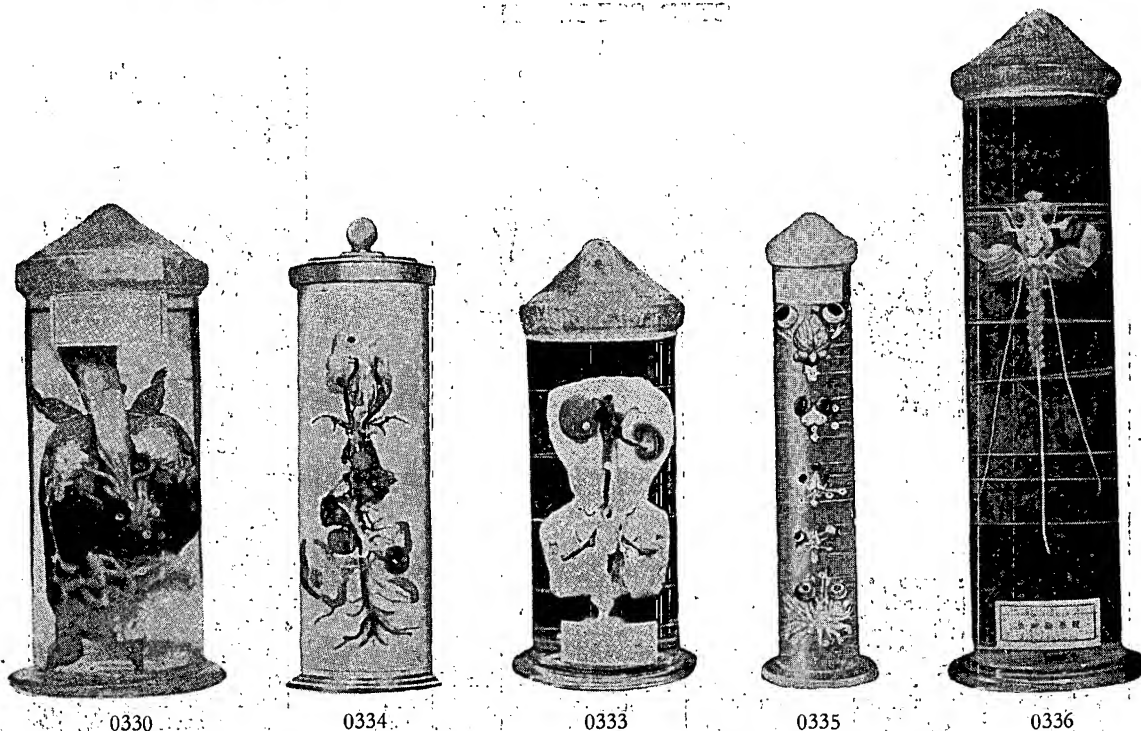
0327 猴 骨 骼

**Monkey Skeleton.** Skeleton thoroughly bleached. Mounted in natural position on a tripod. Covered with a dustproof cloth.

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## 浸製解剖標本 VI. PRESERVED AND DISSECTED SPECIMEN



## 0328 鯽魚解剖

**Dissection of Carp (or Silver Carp).** Doubly injected with arteries red and veins blue. Mounted on glass plate in formalin fluid.

## 0329 青蛙(或蟾蜍)的解剖

**Dissection of Frog (or Toad).** Doubly injected with arteries red and veins blue. Mounted on glass plate in formalin fluid. With labeled key card.

## 0330 龜內臟解剖

**Dissection of Turtle.** Doubly injected with arteries red and veins blue. Mounted on glass plate in formalin fluid. With labeled key card.

## 0331 鴿的解剖

**Dissection of Pigeon.** Doubly injected with arteries red and veins blue. Mounted on glass plate in formalin fluid. The right fore-limb and hind-limb are removed. With labeled key card.

## 0332 兔的解剖

**Dissection of Rabbit.** Doubly injected with arteries red and veins blue. Mounted on glass plate in formalin fluid. With labeled key card.

## 0333 兔生殖排泄系統

**Excretory and Reproductive System of Rabbit.** Doubly injected with arteries red and veins blue. The viscera and body wall anterior to the kidneys are removed. The urogenital organs posterior to the kidneys are intact. Parts of the hind-limb below the knees are discarded. Specimen is mounted on glass plate in formalin fluid. With labeled key card.

## 0334 兔呼吸循環系統

**Respiratory and Circulatory Organs of Rabbit.** Doubly injected with arteries red and veins blue. With the trachea, lungs, heart, and the main vessels. Left lung is dissected to show the bifurcation of the trachea. Half of the head, with a sagittal section of it, is mounted additionally to show the nasal cavity, pharynx and glottis. Preserved in formalin. With labeled key card.

## 0335 脊椎動物五綱的腦解剖

**Comparison of Brains in the Five Species of Vertebrates.** Brains of fish, frog, turtle, pigeon and rabbit, arranged in a column by the order of evolution. Shows the various parts of the brains and a small section of the spinal cord. Roots of main cranial nerves and spinal nerves are left intact. Mounted on glass plate in formalin fluid. With labeled key card.

## 0336 鯽魚神經系統

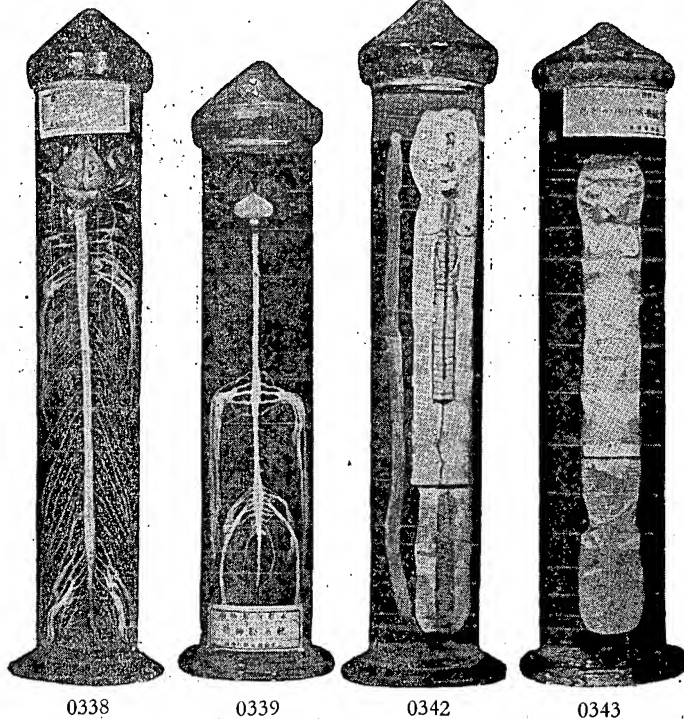
**Nervous System of Silver Carp.** Most of the nerves are dissected out of the skeleton and the branchial arches are left intact. Shows the brain, spinal cord and main cranial nerves. Mounted on glass plate in formalin fluid. With labeled key card.

46

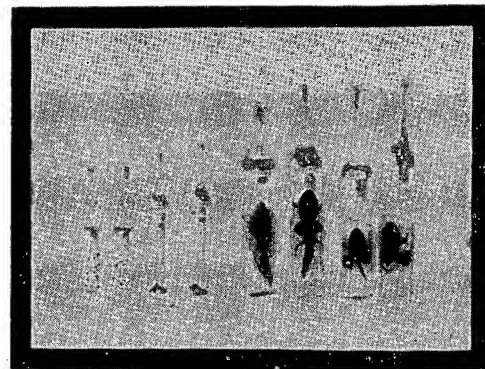
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浸製解剖標本

## VI. PRESERVED AND DISSECTED SPECIMEN



0345



0340

- 0337 青蛙(或蟾蜍)的神經系統  
**Nervous System of Frog (or Toad)** Nerves are dissected out of the skeleton to show the brain, spinal cord, main cranial nerves and spinal ganglia. Mounted on glass plate in formalin fluid. With labeled key card.
- 0338 兔的神經系統  
**Nervous system of Rabbit.** Nerves are dissected out of the skeleton to show the brain, spinal cord and main cranial nerves. Mounted on glass plate in formalin fluid. With labeled key card.
- 0339 鴿的神經系統  
**Nervous System of Pigeon.** Nerves are dissected out of the skeleton to show the brain, spinal cord and main cranial nerves. Mounted on glass plate in formalin fluid. With labeled key card.
- 0340 蛙的發育順序  
**Development of Frog.** Includes seven chief stages in development from the one cell stage to the adult. Preserved in ampoules in formalin fluid. Arranged by the order of development and mounted at the bottom of a glass case. With labels for different stages.
- 0341 蚌的內部構造  
**Dissection of Clam.** One valve is removed. The foot is dissected to show the digestive and reproductive organs. Both the removed valve and the dissected specimen are bound to a glass plate in formalin fluid. With labeled key card.
- 0342 蚯蚓解剖(示內臟)  
**Dissection of Earthworm.** The specimens, parallel to each other. Mounted on glass plate in formalin fluid. One shows the external appearance. The other, dissected along the dorsal line, shows the internal structure. With labeled key card.
- 0343 蚯蚓解剖(示神經系和生殖系)  
**Nervous and Reproductive Organs of Earthworm.** Specimen is dissected along the dorsal middle line. The digestive organs are removed. Shows the nervous and reproductive organs. Mounted on glass plate in formalin fluid. With labeled key card.
- 0345 烏賊解剖示內臟  
**Dissection of Sepia.** Doubly injected with arteries red and veins blue and dissected on the ventral side. Shows the gills, the digestive and reproductive organs. Mounted on glass plate in formalin fluid. With labeled key card.

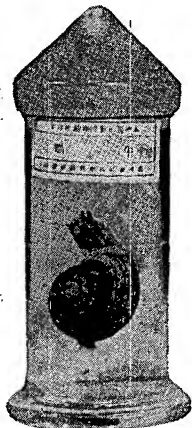
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## 浸製示範標本 VII. PRESERVED DEMONSTRATION SPECIMENS



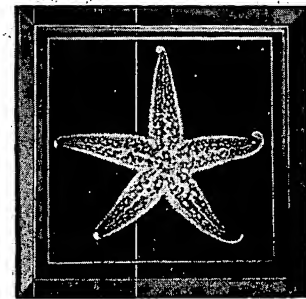
0352



0350



0348



0351

- 0346 海月水母  
Jellyfish (*Aurelia Aurita*). Formalin-preserved, in a display jar.
- 0347 海馬  
The Sea-horse (*Hippocampus*). Formalin-preserved, in a display jar.
- 0348 蛔蟲外形 (示雌雄)  
*Ascaris Lumbricoides*, Male and Female. Specimens are mounted on a glass plate. Formalin-preserved, in a display jar.
- 0349 蝶螈  
Salamander. Specimen is mounted in natural position on a glass plate. Formalin-preserved, in a display jar.
- 0350 蝸牛  
Snail. Specimen is mounted in natural position on a glass plate. Formalin-preserved, in a display jar.
- 0351 海星  
Starfish. Dry specimen in a dustproof glass case.
- 0352 海參  
Trepang. Mounted on a glass plate. Tentacles and tube-feet, naturally extend. Formalin-preserved, in display jar.
- 0353 比目魚  
Flatfish. Mounted on a glass plate. Formalin-preserved, in a display jar.
- 0354 蜥蜴  
Lizard. Specimen is mounted on a glass plate. Formalin-preserved in a display jar.
- 0355 蜈蚣和馬陸  
Scolopendrid and Millipede. Two specimens, mounted together on a glass plate. Formalin-preserved, in a display jar.
- 0356 狗魚  
Dogfish. Mounted on a glass plate. Formalin-preserved, in a display jar.
- 0357 蟯蟲  
Tapeworm (*Taenia sp.*) Whole worm, mounted on a glass plate. Formalin-preserved, in a display jar.

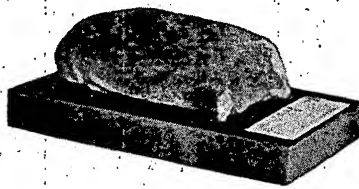
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剥製標本 VIII. MOUNTED SPECIMENS



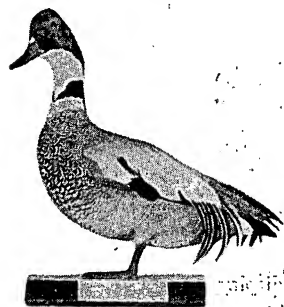
0366



0367



0360



0358



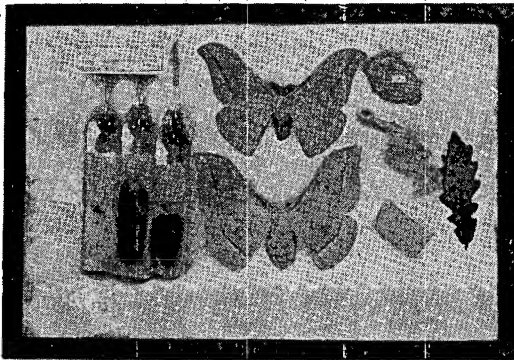
0363

- 0358 野鴨 (♀)  
Wild Duck, Female. In life-like position on a wooden base.
- 0359 野鴨 (♂)  
Wild Duck, Male. In life-like position on a wooden base.
- 0360 啄木鳥  
Woodpecker. Stood in life-like position on a twig, which is mounted on a wooden base.
- 0361 蒼鷹  
Hawk. Stood in life-like position on a twig, which is mounted on a wooden base.
- 0362 貓頭鷹  
Owl. Stood in life-like position on a twig, which is mounted on a wooden base.
- 0363 鴿  
Pigeon. In life-like position on a wooden base.
- 0364 北京鴨  
Peking Duck. In life-like position on a wooden base.
- 0365 蝙蝠  
Bat. Wings expanded. In life-like position stood on a twig, mounted on a wooden base.
- 0366 松鼠  
Squirrel. Mounted in life-like position on a twig, fixed upon a wooden base.
- 0367 鼯鼠  
Mole. Mounted in life-like position on a wooden base.

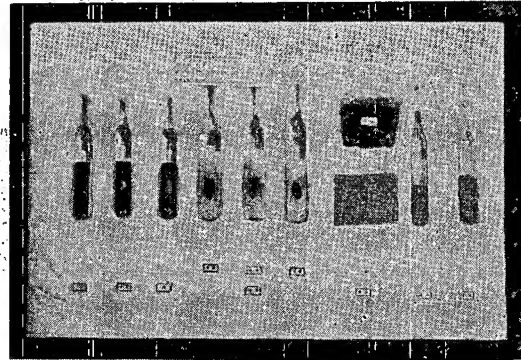
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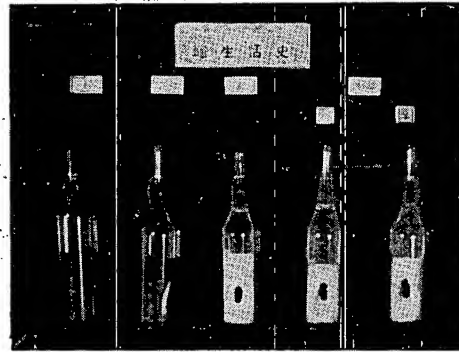
## 昆蟲標本 IX. INSECTS



0371



0372



0374

## 0369 蝗蟲生活史

**Life History of Grasshopper (*Locusta Migratoria*).** Includes the different stages of development. With instars in succeeding stadia. All but the imagoes are preserved in ampoules with formalin liquid. A piece of injured plant is added. Mounted in a glass case.

## 0370 菜粉蝶生活史

**Life History of the Cabbage Butterfly (*Pieris Rapae* L.).** With all stages of life history. The young preserved in ampoules with formalin liquid. With a piece of injured plant. Mounted together in a glass case.

## 0371 柞蠶生活史

**Life history of the Chinese oak silkworm. (*Antheraea Pernyi* Guesin).** With all stages of life history. The young preserved in ampoules with formalin liquid. Imagoes dry, with wings expanded. A piece of silk is added. Mounted totally in a glass case.

## 0372 蜜蜂生活史

**Life History of Honey-bee (*Apis Mellifera* L.).** With all stages of life history. Includes the adult queen, adult drone, and adult worker, one for each. The young preserved in ampoules with formalin liquid. With honeycomb, comb-basis, honey and wax. Mounted totally in a glass case.

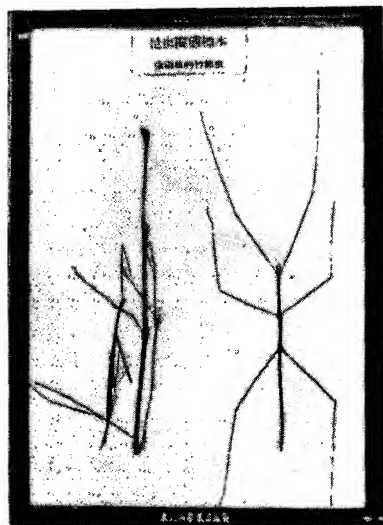
## 0373 蠶蛾生活史

**Life History of Silkworm (*Bombyx mori* L.)** With all stages of life history and instars in succeeding stadia. The young preserved in ampoules with formalin liquid. A piece of silk is added. Totally mounted in a glass case.

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## 昆蟲標本 IX. INSECTS



0375



0376

## 0374 蠅的生活史

**Life History of Fly (Musca Domestica).** With all stages of life history. The young preserved in ampoules with formalin liquid. Mounted in a glass case.

## 0375 竹節蟲

**Walking-stick (Diaperomera Orientalis).** Two specimens in total, one in regulated manner, the other in a form of mimicry. With a twig mounted together in a glass case.

## 0376 枯葉蝶

**Leaf Butterflies.** Two specimens in total, one in regulated manner, the other in a form of mimicry. With a twig mounted together in a glass case.

## 0377 螟蛾生活史

**Life History of Corn Borer (Pyrausta Nubilalis Hubner).** With all stages of life history. The young preserved in ampoules with formalin liquid. A piece of injured plant is added. Mounted totally in a glass case.

## X. 顯微鏡玻片標本組 MICROSCOPIC SLIDES SETS

												每組片數
												Per Set
GZ25	動	物	學	Zoology	...	...	...	...	...	...	...	25 pcs.
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GB25	植	物	學	Botany	...	...	...	...	...	...	...	25 "
GB50	植	物	學	Botany	...	...	...	...	...	...	...	50 "
GH25	生	理	組	Thysiology and Histology	...	...	...	...	...	...	...	25 "
GH50	生	理	組	Thysiology and Histology	...	...	...	...	...	...	...	50 "
HP12	寄	生	蟲	Parasitology	...	...	...	...	...	...	...	12 "
HP25	寄	生	蟲	Parasitology	...	...	...	...	...	...	...	25 "
BS25	生	物	學	Biology	...	...	...	...	...	...	...	25 "
BS50	生	物	學	Biology	...	...	...	...	...	...	...	50 "
BS100	生	物	學	Biology	...	...	...	...	...	...	...	100 "
BM25	初	中	示	Assorted set for Junior Middle School	...	...	...	...	...	...	...	25 "
BM50	初	中	示	Assorted set for Junior Middle School	...	...	...	...	...	...	...	50 "
BM100	初	中	示	Assorted set for Junior Middle School	...	...	...	...	...	...	...	100 "

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0004-2	槽碼 1-500 克	Slotted Weights	1-4-11
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3	萬用電表	Universal Electric Measuring Instrument	1-7-6

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0188-3	雙凸透鏡	Double Convex Lens	0-6-0
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0195-3	顯微鏡模型	Microscope Model	1-15-3
0196-3	指示接目鏡	Indicating Eye-lens	
0197-3	解剖放大鏡	Dissecting Microscope	
0198-3	讀數放大鏡	Reading Magnifier	
0199-3	望遠鏡模型	Telescope Model	1-3-9
0200-3	稜鏡雙筒望遠鏡模型	Model of Prism Binoculars	4-7-1
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0204-3	彩色玻璃	Colored Glass Plates	0-6-3
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# 學生物理實驗儀器 STUDENT'S EXPERIMENT INSTRUMENTS

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0221-1	長 方 體 組	Rectangular Blocks	0-6-3
0222-1	鈎 碼	Weights, with Hook	0-10-5
0223-1	金 屬 圓 柱 體	Cylindrical bodies, metal	0-10-0
0224-1	400 克 測 力 計	400 gm. Spring Balance	0-3-9
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0226-1	槓 桿	Lever	0-6-0
0227-1	力 矩 盤	Disc of Moment of Force	0-7-0
0228-1	平 拋 實 驗 裝 置	Level throw Apparatus	0-8-9
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0233-1	玻 意 耳 - 馬 略 特 定 律 實 驗 器	Boyle-Mariotte's Law Apparatus	0-6-3
0234-1	條 形 磁 鐵	Bar Magnet	0-12-6
0235-1	蹄 形 磁 鐵	Horse-shoe Magnet	0-7-6
0236-1	鐵 屑 盒	Iron filings box	0-0-9
0237-1	導 線	Conductive Wire	0-2-4
0238-1	單 刀 開 關	Single Knife Switch	0-3-3
0239-1	電 阻 圈	Resistance Ring	0-11-2
0240-1	滑 動 變 阻 器	Sliding Rheostat	0-17-5
0241-1	電 磁 替 續 器	Relay, Magnetic	0-12-6
0242-1	電 機 模 型	Dynamo Model	0-12-11
0243-1	銅 電 解 器	Electrolytic Cell, Copper	0-9-8
0244-1	簡 易 檢 流 計	Simple current Tester	0-8-6
0445-3	靈 敏 電 流 計	Sensitive Galvanometer	1-18-3
0245-3	直 流 安 培 計	D.C. Ampere-Meter	1-18-3
0246-3	直 流 伏 特 計	D.C. Voltmeter	1-18-3
0247-1	雙 凸 透 鏡 No. 1	Double Convex Lens, No. 1	0-3-9
0248-1	雙 凸 透 鏡 No. 2	Double Convex Lens, No. 2	0-3-9
0249-1	雙 凸 透 鏡 No. 3	Double Concave Lens, No. 3	0-3-9
0250-1	縫 屏	Slit Screen	0-2-0
0251-1	毛 玻 璃 小 光 屏	Ground-glass Screen, small	0-2-0
0252-1	方 格 小 光 屏	Cross Mesh Screen, Small	0-2-6
0253-1	光 源 燈 座	Stand of Light Source Lamp	0-7-0
0254-1	小 平 面 鏡	Small Plane Mirror	0-1-1
0255-1	玻 璃 磚	Glass Brick	0-7-0
0256-1	方 座 支 架	Square Base Support	0-3-5
0257-1	複 夾	Compound Clamp	0-1-5
0258-1	燒 瓶 夾	Flask Clamp	0-3-3
0259-1	鐵 環	Iron Ring	0-1-5
0260-1	鐵 圈	Iron Hoop	0-0-9
0261-1	刻 度 尺	Scale	0-1-9
0262-1	三 角 尺	Triangular Meter	0-3-9
0263-1	量 角 器	Angle Gauge	0-0-9
0264-1	量 筒	Measuring Cylinder	0-2-6
0265-1	酒 精 燈	Alcohol Lamp	0-1-3

生物模型・標本・顯微鏡切片

BIOLOGICAL MODELS, SPECIMENS MICROSCOPIC SLIDES

I 古生物模型 PALEOLOGICAL MODELS

0290	馬足進化模型	Evolutional steps in horse's leg	
0291	草食恐龍模型	Herbaceous dinosaur	
0292	肉食恐龍模型	Carnivorous dinosaur	
0293	始祖鳥化石及復原模型	Fossil and restored figure of Archeornis	3-2-3

II 植物模型 BOTANICAL MODELS

0295	雙子葉植物莖模型 (根木)	Dicot Stem	1-16-1
0296	根縱剖模型	Root	1-2-5
0297	葉的縱橫斷面模型	Dicot leaf	1-11-1
0298	小麥花模型	Wheat flower	1-6-2

III 動物模型 ZOOLOGICAL MODELS

0300	反芻胃(牛胃)模型	Ruminant stomach of ox	4-3-4
0301	水螅縱斷模型	Hydra	2-2-4
0302	有鉤蟲生活史模型	Life history of tapeworm (Hooked)	3-7-2
0303	草履蟲模型	Paramecium	2-17-3

IV 生理模型 HUMAN ANATOMICAL MODELS

0306	人體骨骼模型	Human skeleton	20-10-1
0307	人體半身內臟解剖模型	Dissection of Human Trunk with head	14-0-0
0308	眼解剖模型	Dissection of eye	4-0-0
0309	牙解剖模型	Dissection of teeth	1-15-2
0310	腦解剖模型	Dissection of brain	1-7-6
0311	皮膚模型	Skin	0-16-10
0312	心臟解剖模型	Dissection of heart	5-12-0
0313	耳解剖模型	Dissection of ear	1-15-2
0314	喉頭解剖模型	Dissection of larynx	3-8-10
0315	泌尿系統模型	Urinary system	2-17-7
0316	消化系統模型	Digestive system	5-12-0
0317	呼吸系統模型	Respiratory system	1-18-3

V 骨骼標本 SKELETONS

0321	魚骨	Carp (or Silver Carp) skeleton	1-2-2
0322	龜骨	Turtle skeleton	1-3-9
0323	鴿骨	Pigeon skeleton	1-7-2
0324	蛙骨(蟾蜍骨)	Frog (or Toad) skeleton	0-13-10
0325	蝙蝠骨	Bat skeleton	1-7-6
0326	兔骨	Rabbit skeleton	2-14-4
0327	猴骨	Monkey skeleton	

# VI 浸制解剖標本 PRESERVED AND DISSECTED SPECIMEN

0328	鯽魚解剖	Dissection of Carp (or Silver carp)	0-19-9
0329	青蛙(或蟾蜍)的解剖	Dissection of Frog (or Toad)	0-13-10
0330	龜內臟解剖	Dissection of Turtle	1-7-5
0331	鴿的解剖	Dissection of Pigeon	1-13-0
0332	兔的解剖	Dissection of Rabbit	1-17-8
0333	兔生殖排泄系統	Excretory and Reproductive System of Rabbit	1-0-4
0334	兔呼吸循環系統	Respiratory and Circulatory organs of Rabbit	
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0336	鯽魚神經系統	Nervous System of silver carp	0-16-6
0337	青蛙(或蟾蜍)的神經系統	Nervous System of Frog (or Toad)	0-15-5
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0340	蛙的發育順序	Development of Frog	0-15-0
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0343	蚯蚓解剖(示神經系和生殖系)	Nervous and reproductive organs of Earthworm	
0345	烏賊解剖示內臟	Dissection of Slug	0-13-3

# VII 浸制示範標本 PRESERVED DEMONSTRATION SPECIMENS

0346	海月水母	Jellyfish (Aurelia aurita)	
0347	海馬	The sea-horse (Hippocampus)	0-9-2
0348	蛔蟲外形(示雌雄)	Ascaris lumbricoides, male and female	0-10-6
0349	蝶螈	Salamander	0-5-0
0350	蝸牛	Snail	0-6-0
0351	海星	Starfish	0-6-6
0352	海參	Trepang	0-6-4
0353	比目魚	Flatfish	0-10-3
0354	蜥蜴	Lizard	0-6-9
0355	蜈蚣和馬陸	Scolopendrid and milli pede	0-13-8
0356	狗魚	Esox lucius	
0357	蟠蟲	Tapeworm (Taenia sp.)	

# VIII 剝制標本 MOUNTED SPECIMENS

0358	野鴨(♀)	Wild duck, female	0-12-8
0359	野鴨(♂)	Wild duck, male	0-12-8
0360	啄木鳥	Woodpacker	0-9-7
0361	蒼鷹	Hawk	
0362	貓頭鷹	Owl	0-16-10
0363	鴿	Pigeon	0-8-8
0364	北京鴨	Peking duck	1-9-9
0365	蝙蝠	Bat	0-7-0
0366	松鼠	Squirrel	0-16-10
0367	鼯鼠	Mole	0-18-5

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0369	蝗蟲生活史	Life history of Grasshopper (Locusta migratoria)	0-8-2
0370	菜粉蝶生活史	Life history of the Cabbage butterfly (Pieries rapae L.)	0-11-5
0371	柞蠶生活史	Life history of the Chinese oak silkworm (Antheraea Pernyi Guesin)	0-19-10
0372	蜜蜂生活史	Life history of Honey-bee (Apis mellifera L.)	0-15-6
0373	蠶蛾生活史	Life history of Silkworm (Bombyx mori L.)	0-18-3
0374	蠅的生活史	Life history of Fly (Musca domestica)	0-8-0
0375	螟蛾生活史	Life history of Corn borer (Pyrausta nubilialis Hubner)	0-8-1
0375	竹節蟲	Walking-stick (Diapheromera orientalis)	
0376	枯菜蝶	Leaf butterfly	

## X 顯微鏡玻片標本 MICROSCOPIC SLIDE SETS

BZ 25	動物學	Zoology	25	pcs.	set	1-13-10
BZ 50	"	"	50	"	"	3-10-9
GB25	植物學	Botany	25	"	"	1-13-10
GB50	"	"	50	"	"	3-10-9
GH25	生理組織學	Thysiology & Histology	25	"	"	1-13-10
GH50	"	"	50	"	"	3-10-9
PH 12	生寄蟲學	Parasitology	12	"	"	
PH 25	"	"	25	"	"	
BS 25	生物學	Biology	25	"	"	1-13-10
BS 50	"	"	50	"	"	3-10-9
BM25	初中示教	Assorted set for Junior Middle School	25	"	"	1-13-10
BM50	"	"	50	"	"	3-10-9

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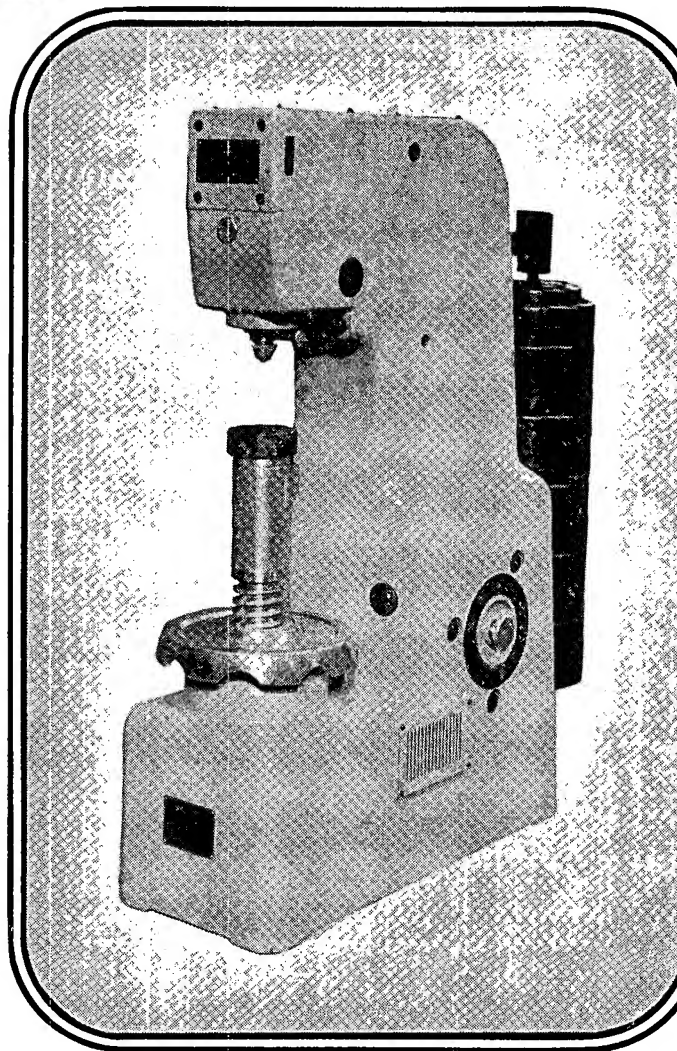
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CHINA NATIONAL INSTRUMENTS IMPORT CORPORATION

IMPORTERS & EXPORTERS

布氏硬度試驗機、573 型

Cat. No.  
C-001



CHINA  
BRINELL HARDNESS TESTER, MODEL 573. ADVERTISEMENT FROM CHINA  
NATIONAL INSTRUMENTS IMPORT CORPORATION. APRIL-SEPTEMBER 1958.  
CHINESE COMMUNIST SOURCE. OFFICIAL USE ONLY (21) CIA 349749

### BRINELL HARDNESS TESTER. MODEL 573

#### Description:

This Brinell Hardness Tester, Model 573 is the most reliable equipment for determining Brinell hardness of metals. Consisting mainly of a rigid stand fitted with a table on which the workpiece is placed, this Tester is employed to conduct hardness test by means of a penetrator with a hardened steel ball of fixed diameter, which presses the surface of the workpiece under a specified load thus producing a permanent deformation. The load is applied slowly and progressively and the succession of the loading period is controlled by an electric switch. The workpiece is then removed from the table and the indentation diameter is measured by a magnifier. Brinell hardness value can be obtained according to the following formula:

**CHINA NATIONAL INSTRUMENTS IMPORT CORPORATION**

( IMPORTERS &amp; EXPORTERS )

$$H_B = \frac{P}{\frac{\pi D}{2} (D - \sqrt{D^2 - d^2})}$$

P = Load (kg.)

D = Diam. of steel ball (mm)

d = Diam. of indentation (mm)

**Usage:**

This Hardness Tester is designed for measuring the Brinell hardness value of all kinds of ferrous and non-ferrous metals, unforged steel, cast iron and mild steel, within the range of  $H_B 8 - H_B 450$ . The rigid construction of the apparatus and its high and lasting accuracy as well as simple attendance ensure its being widely adopted in the metallurgy workshops, machinery factories, inspecting rooms and in the college laboratories.

**Specifications:**

Load to be applied on specimen	187.5	250	750	1000	3000	kgs.
Diams. of steel balls	2.5	5	10	mm.		
Loading period	10	30	60	sec.		
Max. allowable height of workpiece	250	mm.				
Overhang from spindle axis to front of stand	120	mm.				
Transformer for indicating lamp	220/6	V.				
Transmitting principle	Level	Transmitting System.				
Lever Ratio	1:50					
Control method of loading	Automatic					
Motor: Power	0.25	KW.	220/380	V.		
Revolution	1420	Rev./Min.				
Overalls	835 x 700 x 225	mm.				
Weight: Net weight with/without complete accessories	228/220	kgs.				
Gross Weight	250	kgs.				

**Accessories:**

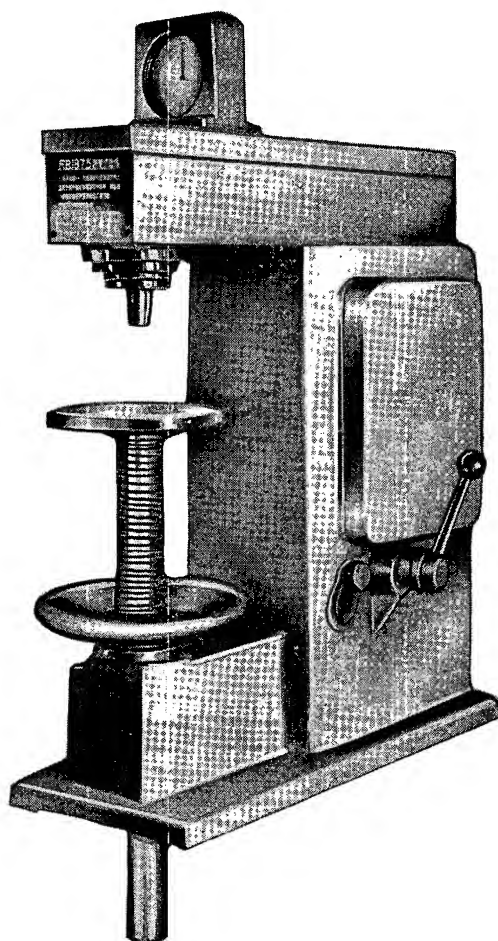
1	Plate Table
1	V Groove Table
1 each	Penetrator (Diam. 2.5 5 10 mm)
1 each	Calibrating Plates (hard, soft)
1	Magnifier for measuring dia. of indentation.
1	Dust-proof Cover
3	Movable Contactors
3	bulbs
5 each	Steel Balls (Diam. 2.5 5 10 mm)
1	Direction for use of Tester
1	Direction for use of Magnifier
1	Hardness value converting table

中國儀器進口公司 (兼營出口業務)

CHINA NATIONAL INSTRUMENTS IMPORT CORPORATION, PEKING, CHINA.  
(IMPORTERS & EXPORTERS)All enquiries and orders, please address to Tientsin Branch  
14, Chang Teh Tao, Hsin Hua District, Tientsin, China — Cable Address: "INSTRIMP" Tientsin.

CHINA NATIONAL INSTRUMENTS IMPORT CORPORATION

IMPORTERS &amp;

Cat. No.  
C-003

CHINA  
HARDNESS TESTER, MODEL R.B. 187.5. ADVERTISEMENTS  
FROM CHINA NATIONAL INSTRUMENTS IMPORT CORPORATION.  
APRIL-SEPTEMBER 1958. CHINESE COMMUNIST SOURCE.  
OFFICIAL USE ONLY (21) CIA 349750

This Tester is principally designed to measure hardness of metals according to Rockwell method. When using steel ball of 1/16 in diam. and corresponding load, Brinell hardness test of metallic material, can also be done by means of this Tester. Equipped with flat, V-shaped and slanting platforms of different sizes to suit all sorts of testing-piece, this Tester is characteristic of its rigidity in structure, simplicity in operation and reliability in performance.

## CHINA NATIONAL INSTRUMENTS IMPORT CORPORATION

( IMPORTERS & EXPORTERS )

### Main Specifications:

Preload: . . . . . 10 kgs.  
Main loads: . . . . . 62.5 100 150 187.5 kgs.  
Scale of Indicator: . . . . . R<sub>c</sub> 0-100  
R<sub>B</sub> 30-130

### Penetrators:

Diamond cone with top angle 120° (R<sub>c</sub> test)  
Steel Ball diam. 1.5875 mm. (R<sub>B</sub> test)  
Steel Ball diam. 2.5 mm. (H<sub>B</sub> test)

**Max. height of test-piece allowed:** 250 mm.

**Distance from Penetrator to body of Tester:** 150 mm.

**Net Weight:** 100 kgs. approx.

**Overalls:** 600 x 300 x 700 mm.

## 中國儀器進口公司

(經營進口及出口業務)

總公司

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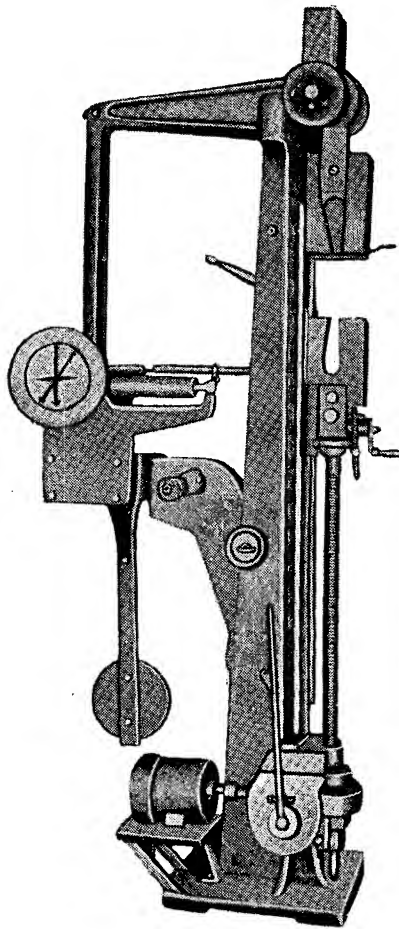
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25X1

Cat. No.  
C-004



CHINA  
TENSILE TESTING MACHINE MODEL 1-5. ADVERTISEMENTS FROM CHINA  
NATIONAL INSTRUMENTS IMPORT CORPORATION. APRIL-SEPTEMBER 1958.  
CHINESE COMMUNIST SOURCE.  
OFFICIAL USE ONLY (21)

CIA 349751

S.R. Type P-5, which is suitable for tensile and compressive strength testing of metal wires and metal plates. It is frequently used in institutes and laboratories of material testings and metal works for tensile strength, elongation and compression investigations.

**Capacity:** 250 kgs. to 5000 kgs.

Fitted with an automatic recording device, stress strain diagram can be plotted automatically with scales of 1 : 1 & 1 : 2.

**Accuracy:** (for tension test):  $\pm 1\%$

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( IMPORTERS & EXPORTERS )

**Maximum Space for Tensile Testing:** 900 mm (including elongation specimen).

**Maximum Space for compressive testing:** 200 mm.

**Moving speed of Lower Clamping Head:** 10 mm/Minute & 46 mm/Minute.

**Power required:** 0.6 KW. equipped with motor.

This machine is also fitted with Hand-driven device for testing.

**Overall Size:** 1370 x 745 x 2215 mm.

**Net weight:** approx. 700 kgs.

**中國儀器進口公司**

( 經營進口及出口業務 )

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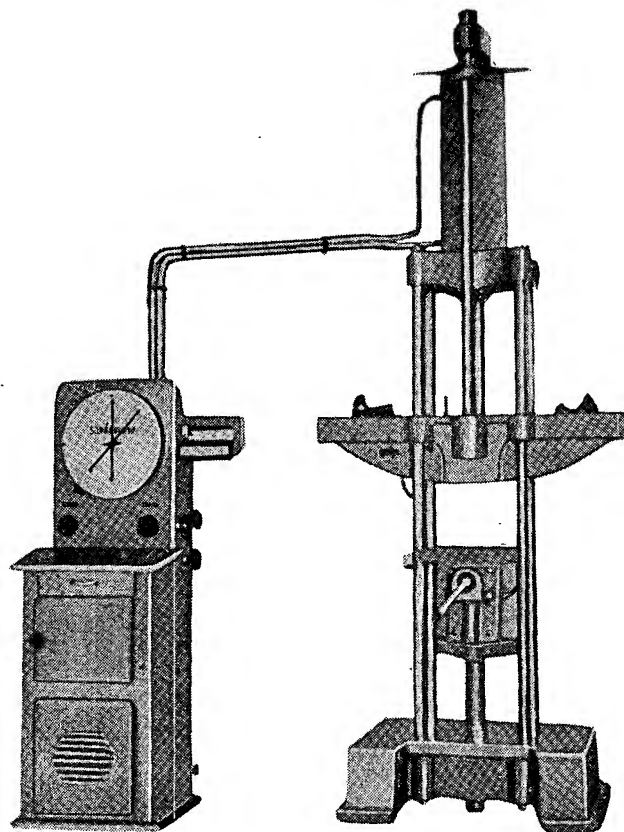
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CHINA NATIONAL INSTRUMENTS IMPORT CORPORATION

IMPORTERS &amp; EXPORTERS

萬能材  
50T Universal機 2-50-1 型  
Machine, Model 2-50-1Cat. No.  
C-005

CHINA  
50T UNIVERSAL TESTING MACHINE, MODEL 2-50-1. ADVERTISEMENTS  
FROM CHINA NATIONAL INSTRUMENTS IMPORT CORPORATION, APRIL-  
SEPTEMBER 1958. CHINESE COMMUNIST SOURCE.  
(1)

CIA 349752

**Descr**

work

of metals

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g and shear

The machine consists of two parts: (1) the Main Body composed of ram, cylinder, clamping device and base, (2) the Dynamometer composed of high pressure piston pump, pendulum device, test speed control valve and automatic stress-strain recording apparatus. The maximum possible error of Dynamometer is within the range of  $\pm 1\%$ .

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When installing, the Testing Machine and the Pendulum Dynamometer are simply bolted on to the ground of the test room. Special foundation is not required. All switches and hand wheel are placed at the lateral and front sides of the Dynamometer, so it is operated conveniently.

**Main Specifications:**

Measuring Range	.. .. .	5. 10. 25. 50 Tons
Division of Scale Dial	.. .. .	0- 5 tons      10 kgs. per division
	.. .. .	0-10    „      10    „    „    „
	.. .. .	0-25    „      50    „    „    „
	.. .. .	0-50    „      100    „    „    „
Distance between gripping heads	.. .. .	0-1000 mm.
Distance between compression plates	.. .. .	0- 450 mm.
Distance between supports for bending test		100-1300 mm.
Diameter of specimen for shearing test	.. .. .	5. 10. 20. mm.
Diam. of cylinder piston×stroke	.. .. .	φ170×490 mm.
Test speed	.. .. .	0-150 mm./sec.
Maximum pressure of pump	.. .. .	250 kgs. per square cm.
Electric motor for pump	.. .. .	1.7 KW.
Max. height of Machine	.. .. .	3840 mm.
Overall Size:		
Main Body	.. .. .	1350×900×3840 mm.
Dynamometer	.. .. .	1000×860×1830 mm.
Net Weight:		
Complete Machine	.. .. .	1970 kgs.
Dynamometer	.. .. .	430 kgs.
Gripping Heads & Tools	.. .. .	300 kgs.

中國儀器進口公司(兼營出口業務)

CHINA NATIONAL INSTRUMENTS IMPORT CORPORATION, PEKING, CHINA.  
(IMPORTERS & EXPORTERS)All enquiries and orders, please address to Tientsin Branch  
14, Chang Teh Tao, Hsin Hua District, Tientsin, China — Cable Address: "INSTRIMP" Tientsin.

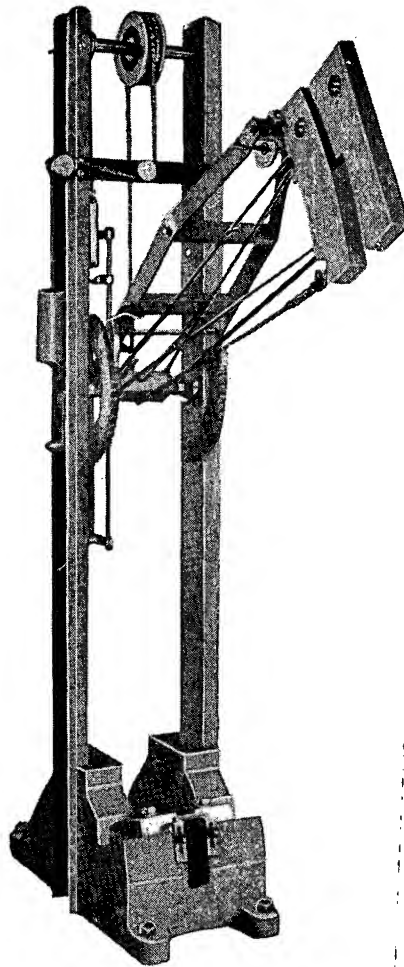
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Cat. N  
C-002



CHINA  
PENDULUM IMPACT TESTING MACHINE, MODEL MK-30. ADVERTISEMENTS FROM  
CHINA NATIONAL INSTRUMENT IMPORT CORPORATION. APRIL-SEPTEMBER 1958.  
CHINESE COMMUNIST SOURCE. OFFICIAL USE ONLY (1)  
CIA 349753

**Description:**

This Impact Machine serves the purpose of determining impact strength of materials. Its special features are simple construction, easy handling and reliable performance. Test is done by means of a pendulum hammer which strikes on the work piece from a given height. After having fractured the specimen, part of the kinetic

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energy swings the hammer to the other side of the machine and from the height of this residual swing, the energy spent in breaking the workpiece can be determined. With axis supported on ball bearing, the pendulum can be adjusted in different height of 16 grades varying directly with the amount of energy required in the test. The apparatus should be set up on a concrete pedestal.

**Main Specifications:**

Maximum Energy:	.. .. .	30 kg.-m.
Weight of Hammer:	.. .. .	26 kgs. Approx.
Maximum Impact Speed:	.. .. .	48 m/sec.
Accuracy of Reading:	.. .. .	0.2 kg.-m.
Range of Swing of Pendulum:	.. .. .	2100 mm.
Overalls:	.. .. .	750 x 340 x 2090 mm.
Net Weight:	.. .. .	400 kgs.

**中國儀器進口公司**

(經營進口及出口業務)

總公司

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